THE IRON TRADE REVIEW

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RAILROAD BUYING

CONTINUES AT A MODERATE RATE

And Future Attitude of Roads is Uncertain—Pig Iron Prices Soft—More Cutting on Some Finished Materials.

The market has not been characterized by any very positive developments. There is considerable softness in pig iron, and concessions are being more freely made on some finished products. The attitude of the railroads in regard to buying is still somewhat uncertain, but a fair number of orders for structural material and cars have been placed within a few days.

Pig Iron

The Pennsylvania railroad is in the market for from 5,000 to 7,000 tons of foundry iron in the Philadelphia district, and the B. & O. is inquiring for 1,000 tons, but in most parts of the country the inquiry is not heavy. Round blocks of basic purchased by an eastern steel interest from a furnace in that territory for early shipment have been made at $15.75, delivered, which is now established as the price. A valley interest has sold 10,000 tons of Bessemer on a sliding scale basis. In the valley, very low quotations are being made on No. 2 foundry, on which $14.50 has been shaded, and on malleable, which has sold at $14.50. Cast iron pipe interests have made some additional purchases during the week.

Structural Material

It is estimated that structural contracts for the first half of the year will amount to 750,000 tons. Although this tonnage is large, it is not enough to satisfy the capacity of plants, and the results of strong competition are being shown in the shading of prices, especially in the eastern territory, where a quotation less than 1.45c, Pittsburg, has been made. In the immediate Pittsburg district, however, prices are firmer. The Morava Construction Co. has taken a contract for 3,000 tons for the International Harvester Co. building at Milwaukee, and 1,000 tons for the Wells-Fargo Express Co. building, Chicago. Milliken Bros. will erect the Olympic Club building, San Francisco, 1,500 tons, and three new buildings in New York City, aggregating 2,100 tons. The Forest City Iron & Steel Co. has been awarded the contract for erecting the City Investment building, Cleveland, involving about 1,000 tons. The American Bridge Co. will erect the Duncan warehouse, New York City, 1,300 tons.

Railroad Buying

The American Bridge Co. has taken a large tonnage of bridge material, including 10,000 tons for the Canadian Pacific bridge across the St. Lawrence river; 15,000 tons for the Kentucky & Indiana bridge at Louisville, and 1,200 tons for Santa Fe bridges. This company has also taken 1,350 tons for the Chicago & Northwestern shops, Chicago, and 1,300 tons for a freight house for the Missouri, Kansas & Texas, at St. Louis. The B. & O. has bought 1,000 steel underframe cars. The Chicago & Alton is in the market for 4,250 steel underframe box cars, and 250 steel underframe automobile cars. Some rail inquiry has been received from roads which it was thought had fully covered for their requirements up to Jan. 1, 1911.

Finished Material

Prices on sheet, except blue annealed, are being shaded from $1 to $3 per ton. The tonnage of tin plate now being booked is not large, because many users have covered for their last half requirements. The steel bar market continues active, and considerable contracting has been done not only by agricultural implement concerns, but by other consumers. The Gulf Engineering Co. has awarded the contract to the National Tube Co. for 100 miles of 6-inch steel pipe, and negotiations for a much larger tonnage are pending. Specifications on boiler tubes are coming in at a liberal rate.

Coke and Scrap

An interesting development of the old material market is the action of buyers of wrought iron scrap in forming a central selling agency in the Philadelphia district similar to that which has been in existence for some time among the buyers of steel scrap. Some sellers of coke in the Connellsville region are asking higher prices, but there is little activity in the market.

PANAMA GATES

Will Require Large Tonnage—Railroad Inquiry.

New York, June 15. (By wire.)

Bids are being entered at Washington today for the construction of the mitre gates for locks of the Panama Canal, which, including castings, will require upwards of 60,000 tons of steel, of which about 40,000 tons is plates and 16,000 to 18,000 tons shapes. Several Pittsburg fabricators besides the United States Steel Exports Co., the Maryland Steel Co. and others are expected to compete.

The Baltimore & Ohio has postponed for a week the taking of figures upon its inquiry for 7,000 cars. Bids are now called for Friday. Eighty-five locomotives reported as ordered from the Baldwin Locomotive Works by the Harriman lines are a part of an inquiry for 204 locomotives. The remainder are still pending.

The Colorado Fuel & Iron Co. has taken 1,600 tons of rails from the Stockton Terminal & Eastern railroad. The Illinois Steel Co. reports sales of 500 tons.

The Carnegie Steel Co. this week is blowing in an additional blast furnace at its Duquesne, Pa., group. With this furnace active the subsidiaries of the United States Steel Corporation will have blowing 91 stacks of a total of 119.

THE WEEK IN IRON CENTERS

PITTSBURG.

More Buying in Some Lines—Bridge Contracts Awarded.

Office of THE IRON TRADE REVIEW,
510 Park Building, June 14.

Developments of the past week in the local iron and steel trade have been of an encouraging nature. The distinct change in sentiment following the announcement that the government and the railroads had reached an agreement concerning freight rates has been followed by more general buying and heavier specifying with firmer prices in some lines. Some buyers are still very cautious in placing orders, and recent sales of pig iron, Bessemer billets and wire rods developed some low prices, but, taken as a whole, the market this week is in a more promising condition.

The American Bridge Co. during the week booked upwards of 16,000 tons of railroad work, and has been awarded a contract for the Canadian Pacific railroad bridge across the St. Lawrence river, which will require 10,000 tons of steel. The Gulf Refining Co. has awarded a contract to the National Tube Co. for 100 miles of 6-inch steel pipe and several other awards for large pipe likely will be announced shortly. The tin plate market is decidedly active, and all serviceable mills are running full time. The plate market shows a firmer tone. The Chicago & Alton railroad is in the market for 4,250 steel underframe box cars and 250 steel underframe automobile cars.

The Jones & Laughlin Steel Co. expects to have its fourth furnace at Aliquippa, Pa., in blast by July 1. Finishing touches to the new stack are now being added. Demand for steel bars is as heavy as ever, and prices are firm. Some long-term contracts for Bessemer semi-finished steel are being negotiated. Low prices were quoted in connection with sales of Bessemer billets to a consuming interest west of Pittsburg.

Some large inquiries for various grades of pig iron are pending in this market and several sales have been made, but prices are low and users apparently are not in a hurry to close. A steel company east of Pittsburg, which recently closed a two-year contract for between 15,000 and 20,000 tons of coke a month, is understood to have closed for an additional 10,000 tons a month for three years, beginning Jan. 1, 1911. The scrap market is weak.

Pig Iron.—Inquiries for pig iron which developed during the week call for heavy tonnage, and some fairly large deals are being negotiated, but users, except in one or two instances, have confined their purchases to small lots, and in all cases low prices have been quoted. Action likely will be taken tomorrow on the Colonial Steel Co.'s inquiry for from 12,000 to 18,000 tons of standard basic, deliveries to extend over one year beginning July 1. The Standard Sanitary Mfg. Co. is expected to close for from 1,000 to 10,000 tons of foundry iron for its Allegheny and New Brighton, Pa., plants as well as for southern iron for its Louisville plant. The Pennsylvania Railroad Co. is in the market for between 3,000 and 6,000 tons of foundry iron for its Altoona shops. A Monongahela valley consuming interest has closed for approximately 1,000 tons each of Bessemer and foundry iron, and a steel company in the Allegheny valley has taken additional basic iron at low prices. It is generally conceded that the Westinghouse Air Brake Co., which purchased 15,000 tons of foundry and gray forge several days ago, paid between $14.50 and $14.75, valley, for its foundry iron and $14.85, delivered, for gray forge. While $16, valley, on Bessemer no doubt could be shaded, no legitimate sales below that figure have been reported. Negotiations were pending during the early part of the week for an exchange deal involving 12,000 tons of Bessemer, but are understood to have fallen through. Most of the inquiries which have developed during the week are for basic and foundry iron. The general asking price for basic iron is $14.75, valley.

Pig Iron Prices.

(Prompt Shipment.)

Bessemer, valley	$16.00
Bessemer, Pittsburg	16.90
Basic, valley	14.75
Basic, Pittsburg	15.65
No. 2 foundry, Pittsburg	15.65
Gray forge, Pittsburg	15.15
Malleable, Pittsburg	15.90

(Third Quarter.)

Bessemer, valley	16.00
Bessemer, Pittsburg	16.90
Basic, valley	15.00
Basic, Pittsburg	15.90
No. 2 foundry, Pittsburg	15.65
Gray forge, Pittsburg	15.15
Malleable, Pittsburg	16.15

Ferro-Alloys.—Some of the inquiries for ferro-alloys noted recently have developed into actual sales. A local steel company has taken 150 tons of ferro-manganese and another sale of 50 tons is noted. The latter was made on a basis of $39.50, Baltimore. Users of 50 per cent ferro-silicon appear to be well covered for their early needs and there is little buying at this time.

We quote ferro-manganese at $39.50 to $40, Baltimore, for third quarter, and from $40 to $40.50 for second half. The freight rate from Baltimore to Pittsburg is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $59.50 to $60, Pittsburg; domestic 12 per cent, $26.90; 11 per cent, $25.90; 10 per cent, $24.90, Pittsburg, for third quarter, and $1 advance for last half. The foreign grades are held at $1 or more a ton over domestic prices.

Plates.—There has been a decided change for the better in this market during the last week. There is more inquiry, specifications are heavier and prices are firmer. Following the announcement that an agreement had been reached between the government and the railroads concerning freight rates, the carriers are showing a disposition to enter the market with orders which have been held up for some time. The Chicago & Alton Railroad Co. is in the market for 4,250 steel underframe box cars and 250 steel underframe automobile cars. Bids are understood to have been submitted on most of the Baltimore & Ohio railroad cars, for which inquiry was noted recently. Other roads are expected to make awards shortly. The recent awards of large steel line pipe which will involve heavy tonnage of plates has also helped this market considerably. There is less talk of price concessions, and, while some of the eastern mills are reported to be making slightly lower quotations, 1.50c, Pittsburg, is regarded as the minimum in this district. We quote the market as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.50c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½ inch to and including 3-16 inch plate on thin edge, 0.10c; under 3-16 and in-

cluding No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—There has been little change in this market during the last week. There is still some shading on black and galvanized sheets and there is less talk of premium prices for blue annealed sheets. Jobbers have failed to dispose of the large stocks purchased some time ago, although buying on the part of manufacturing interests continues heavy. Users are specifying freely and the market probably shows a steadier tone than at this time last month. Present sheet prices, Pittsburg base, are as follows, with $1 a ton added as the delivered price in the Pittsburg district:

Blue annealed sheets, Nos. 3 to 8, 1.70c; Nos. 9 and 10, 1.75c; Nos. 11 and 12, 1.80c; Nos. 13 and 14, 1.85c; Nos. 15 and 16, 1.95c; box annealed sheets, Nos. 10 and 12, 2.05c; Nos. 13 and 14, 2.10c; Nos. 15 and 16, 2.15c; Nos. 17 to 21, 2.20c; Nos. 22 to 24, 2.25c; Nos. 25 and 26, 2.30c; No. 27, 2.35c; No. 28, 2.30c to 2.40c; No. 29, 2.45c; No. 30, 2.55c; galvanized sheets, Nos. 12 to 14, 2.50c to 2.55c; Nos. 15 and 16, 2.60c to 2.65c; Nos. 17 to 21, 2.75c; Nos. 22 to 24, 2.90c; Nos. 25 and 26, 3.10c; No. 27, 3.30c; No. 28, 3.40c to 3.50c; No. 29, 3.60c; No. 30, 3.85c; painted roofing sheets, $1.70 per square for No. 28 gage, 2½-inch corrugation, and galvanized roofing sheets, $3 per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—Owing to the fact that many of the tin plate plants in this district are well booked for the third quarter and that most users have covered for their last half requirements, there is not a great deal of new tonnage being booked at present. During the week there has been little buying by tin can manufacturers, as most of this business for the year has been booked. Can manufacturers, however, are still complaining of the delay in shipments and it is doubtful whether all of the business contracted for can be handled by makers. Independent plants started recently are operating satisfactorily and the leading interest continues to operate in the neighborhood of 190 out of a serviceable capacity of 235 hot mills. There is considerable speculation as to the outcome of the annual wage scale conference between the independent sheet and tin plate makers and representatives of union employes which will open in Pittsburg Thursday. The Union Sheet & Tin Plate Co., which has been operating its four black plate mills at Marietta, O., announces that it has completed a new tin house, equipped with modern tinning pots and machinery for tin and terne plate and it is in position to make quick shipments. The base price on tin plate, over which some premiums are still being paid for desirable deliveries, is as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburg district.

Rails and Track Material.—There is still a fair volume of tonnage in both standard and light rails being booked, and inquiries during the last week indicate that there will be more active buying during the third quarter. An encouraging feature of recent developments is the fact that some of the new inquiries are coming from railroads which were supposed to have covered for their full requirements up to Jan. 1, 1911. Lumber companies and mining interests are heavy buyers of light rails. During the week the leading interest booked approximately 3,500 tons of light rails, in addition to the several thousand tons of standards being booked regularly. A portion of the tonnage booked during the last 10 days is overflow business from western rail mills. No. 2 mill at the Edgar Thomson rail mills is now rolling tie plates. Buying of spikes and track bolts is only moderate. We quote Bessemer rails as follows, the base price on open-hearth rails being $30, mill.

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails on base weight of 40 to 45 pounds, $28, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.75c to 1.80c, Pittsburg; hand spikes, 1.80c to 1.85c, Pittsburg; track bolts, 2.50c, Pittsburg.

Steel.—Large consumers of semi-finished steel are quietly sounding the market on last half business, but practically all of the buying during the last few weeks has been for present needs and some low prices are noted. An Ohio interest has closed for 2,500 tons of 4 x 4 and an equal amount of 2 x 2 Bessemer billets at a low figure. While some plants, which are pretty well sold up over the third quarter, are asking higher prices, Bessemer billets are quotable at from $25 to $25.50, makers' mill. Negotiations are pending for one or two large deals, involving Bessemer sheet bars. Sales of Bessemer sheet bars have been made in this district on a basis of from $26.50 to $27, makers' mill. A sale of forging billets at $32 is noted. There is little change in the open-hearth steel situation. Owing to the scarcity of this grade, high prices are still being asked.

Bessemer 4 x 4 billets with 0.25c carbon and less are quoted at $25.00 to $25.50, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets, from $28 to $28.50, Pittsburg. Forging billets are quotable at $32, Pittsburg. Bessemer sheet and tin bars are quoted at $26.50 to $27, and open-hearth sheet bars are quoted at $29 to $29.50, at makers' mill, located within the $1, Pittsburg, freight limits.

Hoops and Bands.—Makers of hoops and bands report that a number of the contracts which will expire July 1, have been renewed at current market quotations. There has been no let-up in new bookings or specifications and prices are firm. We quote the market as follows:

Hoops in carload lots, 1.55c to 1.60c; in less than carload lots, 1.70c to 1.75c; bands, 1.45c to 1.50c, base, with net extras, as per standard steel.

Merchant Bars. — Notwithstanding that the major portion of the farming implement tonnage has been placed, buying from other sources is heavy and the steel bar market continues to be the most active branch of the local trade. Some of the local plants are four and five months behind in deliveries and are assured steady operation all through the year. Notwithstanding reports of alleged price shading last month, it is generally conceded now that 1.45c is the absolute minimum. Specifications against bar iron contracts appear to be heavier, but there is only a fair volume of tonnage being placed. There has been no let-up in demand for shafting. We quote the market as follows:

Common iron bars, 1.55c, Pittsburg; Bessemer and open-hearth steel bars, 1.45c to 1.50c; plow and cultivator, 1.45c to 1.50c; channels, angles, zees, tees, under 3-inch, 1.45c to 1.50c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds, 0.15c advance; less than 1,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 55 per cent in carloads and 50 per cent in less than carloads, delivered in base territory.

Structural Material.—The structural market, which has been one of the weak branches of the local trade for some time, is showing a much stronger tone as regards both new business and prices. In the immediate Pittsburg district there is not a great deal of new business developing, but local steel companies and fabricators are operating their plants to greater capacity than for some time. The American Bridge Co. during the week booked upwards of 16,000 tons of railroad work and has taken a contract for the Canadian Pacific railroad bridge across the St. Lawrence river, which will require 10,000 tons of steel. The aggregate tonnage involved in work in the Pittsburg district is comparatively large, although most of the new projects involving heavy tonnage

are still being held up. Inquiries during the week have been of an encouraging nature, and makers of steel and fabricators anticipate some large awards. Prices are firmer than for two or three weeks and 1.50c, Pittsburg is the minimum. We quote the market as follows:

Beams and channels, 15-inch and under, 1 50c; over 15 inches, 1.65c to 1.70c; zees, 1.55c to 1.60c; tees, 1.55c to 1.60c; angles, from 3 to 6 inches, 1.55c to 1.60c; over 6 inches, 1.55c to 1.70c; universal and sheared plates, 6¼ inches wide and wider, 1.55c to 1.60c.

Merchant Pipe.—Additional awards for large pipe have been made during the week and this market continues to show improvement. The Gulf Refining Co. has awarded a contract to the leading interest for 100 miles of 6-inch steel pipe and it is understood that negotiations have practically been closed by a western interest for much larger tonnage, details of which will be announced later. Another western interest has authorized a local company to begin work on a large contract placed some time ago, and on which shipments have been held up for the last several months. It is expected that action will be taken within a few days on the inquiry of an Ohio gas company for 60 miles of 16-inch, and that a western Pennsylvania gas interest is expected to enter the market shortly for large pipe. The Ohio Fuel Supply Co. recently placed orders for a large amount of casing, tubing, etc. Owing to the heavy awards made recently, many of the plants making large pipe are crowded with work. Some makers advise that the present price list on merchant steel pipe will be extended to cover the fourth quarter. We quote the following official discounts in carload lots, subject to the usual preferential discount to the larger buyers, merchant pipe, where specified, being offered in from ⅛ to 6 inches.

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch	70	54	66	..
⅜ inch	71	57	67	53
½ inch	74	62	70	58
¾ to 6 inch	78	68	74	64
7 to 12 inch	72	57	68	53
13 to 15 inch	51½	..	..	..
PLUGGED AND REAMED.				
1 to 4 inch	76	66	71	61
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	63	51	58	46
½ to 4 inch	70	58	65	53
4½ to 8 inch	66	54	61	49
9, 10, 11 and 12 inch	59	47	54	42
DOUBLE EXTRA STRONG PLAIN ENDS.				
½ to 8 inch.....	59	48	54	43

Boiler Tubes.—Users of merchant and locomotive boiler tubes are specifying freely and the market shows considerable activity. Average weekly bookings compare favorably with those of last month. We quote the market as follows:

	Steel.	Iron.
1 to 1½ inch	49	43
1¾ to 2¼ inch.....	61	43
2½ inch	63	48
2¾ to 5 inch	69	55
6 to 13 inch	60	43

2½ inch and smaller, over 18 feet, 10 per cent net extra.

2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destination east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

Wire Products.—Reports from all sections show that there has been a still further increase in buying of wire and nails in small lots at 1.80c, Pittsburg. Jobbers are buying more freely, having disposed of a large portion of the stocks purchased some time ago. Makers are more optimistic and anticipate heavier buying during the third quarter. We quote the market as follows, contracts for the jobbing trade being limited usually to 60 days:

Wire nails, jobbers' carload lots, $1.80; retailers' carload lots, $1.85; painted barb wire, jobbers' carload lots, $1.80; retailers' carload lots, $1.85, with 30c for galvanizing; plain wire to jobbers in carloads, $1.60, and to dealers, in carloads, $1.65; polished staples, $1.80; galvanized staples, $2.10.

Wire Rods.—This market has not shown much improvement during the last month. There is only a fair amount of business developing and prices are not very firm. Small lots have been sold recently at less than $31 and we quote from $30.50 to $31, Pittsburg, on Bessemer and open-hearth rods.

Coke.—Aside from the fact that some sellers are asking higher prices for both prompt and last half coke, the coke market shows little change from last week. This does not mean that all sellers are asking higher prices, but applies only to those who have the output of their plants pretty well sold through the third quarter. There has been some selling of prompt coke at from $1.60 to $1.75, ovens, although it is understood that the former quotation has been withdrawn. The Cambria Steel Co., Johnstown, Pa., which recently closed for from 15,000 to 20,000 tons of furnace coke a month for a period of two years, beginning Jan. 1, 1911, with an option on a similar amount for a third year, is understood to have closed, through J. K. Dimmick & Co., for 10,000 tons of coke a month for a period of three years, beginning Jan. 1, 1911. The Cambria Steel Co. now has a contract with J. K. Dimmick & Co. for a portion of its 1910 requirements. Inquiry for foundry coke appears to be much heavier and there has been some buying of prompt and forward delivery in a quiet way Details of the proposed merger of coke companies in the Connellsville region are being worked out and it is expected that additional companies will be taken over shortly by the recently organized Thompson-Kuhn Coke Co. We quote standard Connellsville coke for prompt delivery at from $1.65 to $1.75, ovens, and, on contract, we quote from $1.80 to $2, ovens. On high grade Connellsville foundry coke we quote from $2.25 to $2.50, ovens, for prompt delivery. On contract we quote from $2.25 to $2.50, ovens. The Connellsville *Courier's* figures for the week ending June 4 show 30,357 ovens active with an output of 388,294 tons, compared with 30,422 active ovens and a production of 396,443 tons the previous week.

Old Material.—Little change is noted in the scrap market this week. Inquiry appears to be somewhat heavier, but prices are weak and there is a very small amount of old material changing hands. The Pennsylvania Railroad Co., which asked for bids last week on approximately 20,000 tons of old material, is understood to have disposed of a large portion of its list at comparatively low prices. Local consuming interests continue to buy small lots for prompt delivery and dealers do not anticipate even a moderate buying movement until some improvement is shown in the pig iron market. Prices of heavy melting scrap are slightly lower and this grade can now be had at from $14.75 to $15.25. There is little demand for machine shop turnings. We quote, gross tons, delivered in the Pittsburg district, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, as follows:

Heavy melting scrap	$14.75 to 15.25
Rerolling rails	16.50 to 17.00
Bundled sheet scrap	11.50 to 12.00
Iron axles	25.00 to 25.50
Old iron rails	17.00 to 17.50
No. 1 wrought scrap.....	15.75 to 16.25
Old car wheels	15.00 to 15.50
Low phosphorus	18.00 to 18.50
Machine shop turnings	10.00 to 10.50
Cast borings	8.00 to 8.50
No. 1 cast scrap	14.75 to 15.25
Malleable	15.00 to 15.50
Stove plate	10.25 to 10.75

Joseph L. Lieberman, Chicago, announces that after July 1 the firm name will be known as The Joseph L. Lieberman Iron Co., Not Inc., and will occupy the present suite of offices at 608-9-10 Monadnock building, Chicago.

CHICAGO.

Slightly Improved Conditions Come With Better Weather.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, June 14.

The past few days of more seasonable weather seem to be coincident with improved conditions in iron and steel lines. While no general buying movement has been inaugurated, there is a more hopeful feeling on all sides, and a general expectation of a larger volume of business developing within a very few weeks. This was apparent as soon as the understanding was reached between the President and the railroads on matters of freight rate increase and has continued to an increasing degree since that time. The decision of the Baltimore & Ohio railroad to spend a large sum of money on cars and locomotives is not the least hopeful sign of the times, especially when it is taken in connection with the report that another western railway system is about to place contracts for several thousand cars. Makers of merchant steel also report considerable activity in their line and contracts for new buildings and bridges closed during the week represent a very fair average, the business in this line in the western market for the week amounting to over 10,000 tons, while an equal amount may be closed within a day or two. It is understood that the leading interest is doing a larger average business this year than last, which was the heaviest year in the history of the Corporation.

Pig Iron.—While the pig iron market in Chicago is rather slow, there is quite a little quiet buying in a small way which totals a very respectable figure. The hold-up feature in regard to shipments is reported as very much improved this month as compared with May, and in the experience of some of the heavy interests, shipments in June will be so large that there will be no comparison with the preceding month. Some well-posted authorities, who have been watching conditions very closely, are now willing to be considered "gentle optimists," and are confidently expecting a revival in the pig iron business by the middle of next month. Some southern furnace interests still adhere to the $12, Birmingham, quotation and there have been sales at this figure, but there is also some iron moving at the $11.50 price. There is, however, a growing disinclination to name this price beyond the first half of the year, and an increasing number of furnaces are growing firmer when approached for quotations on shipments running into the third and fourth quarters. Northern iron is very quiet at previous quotations, and a little malleable and foundry has been taken during the past week. An electric company has been negotiating for 500 tons of silvery iron and is on the point of closing for it at this writing.

Lake Superior charcoal	$18.50 to 19.00
Northern foundry No. 2	16.50 to 17.00
Southern foundry No. 2	15.85 to 16.35
Southern silveries, 5 per cent silicon	17.85 to 18.35
Jackson Co. silveries, 8 per cent.	20.40 to 20.90
Malleable Bessemer	16.50 to 17.00
Alabama basic	16.85 to 17.35

Merchant Bars.—The demand for steel bars continues strong and the promising outlook in the line of car-building gives added tone to the market. There is a good demand also for the various kinds of merchant steel. The Baltimore & Ohio bought 1,000 steel underframe cars last week and has given orders to the manufacturers to proceed with the 5,000 cars, which recently were ordered but had been held up temporarily. Two thousand of these cars are of the all-steel type and 3,000 are steel underframe. It is understood that the Hawley system will place orders immediately for 8,000 cars.

We quote, for Chicago delivery, as follows: Bar iron, 1.45c to 1.50c; hard steel bars, re-rolled, 1.50c to 1.60c; soft steel bars and bands and small shapes, 1.63c to 1.68c, base; hoops, 1.78c to 1.88c; planished or smooth finished tire steel, 1.83c to 1.88c; iron finish, up to 1½ by ½ inch, 1.78c, base, tire card; iron finish, 1½ by ½ inch and larger, 1.63c, base, bar card; channels for solid rubber tires, ¾ to 1 inch, 2.13c, flat, and 1⅛ inch and larger, 2.03c, flat; smooth finished machinery steel, 1 inch and larger, 2.43c; flat sleigh shoe, 1.73c; toe calk steel, 2.23c; spring steel, 2.28c; crucible spring steel, 2.78c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 55 per cent off the list for carload lots, and 50 per cent off for less than carload lots, carload freight allowed to points in base territory.

On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.90c to 2c, base; soft steel bars, 1.90c to 2c per 100 pounds, base; soft steel hoops, 2.40c to 2.50c; full extras.

Structural Material.—This has been another good week in the line of contracts for buildings, the business in this western market amounting to over 10,000 tons. The American Bridge Co. secured 1,200 tons of bridge work from the Santa Fe system, and also booked an order for 1,350 tons for new shops of the Chicago & Northwestern railway at Chicago. The same interest also took 200 tons of bridge work for the Elgin, Joliet & Eastern Railway, and 1,400 tons of axles for a car manufacturing company. The Morava Construction Co. secured a contract for the International Harvester Co.'s building at Milwaukee, requiring 3,000 tons, also the Wells-Fargo Express Co. building in Chicago, 1,000 tons. The Lauchman building, at San Francisco, 700 tons, went to the Pacific Rolling Mills. The Indiana Bridge Co. booked an order from the Oliver Chilled Plow Co., South Bend, Ind., for 500 tons. The Illinois Steel Co.'s North Works secured the contract for 300 tons for the Rock Island Plow Shops. A foundry for Crane Co., Chicago, requiring 300 tons, went to the South Halsted Street Iron Works, and a building for the electric company at Canton, Ohio, 200 tons, went to the Pittsburg Bridge & Iron Co. The Minneapolis Steel & Machinery Co. secured 100 tons for a baloon flue for the United States Smelting Co., in Utah. The Olympic Club building, San Francisco, 1,500 tons, went to Milliken Brothers. In addition to the above there are contracts pending which are expected to close in the next few days, amounting to fully 10,000 tons.

We quote, mill prices, for structural shapes, Chicago delivery, as follows:

Beams and channels, 15 inches and under, 1.63c to 1.68c. For extras see Pittsburg report.

Local store prices are as follows: All angles, 3 inches and larger, including 6 inches, $1.90 to $2 per 100 pounds; angles over 6 inches, $2 to $2.10 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.90 per 100 pounds, base; channels, 3 inches and larger, $1.90 per 100 pounds, base.

Steel Rails and Track Supplies.—No orders of any moment for standard section steel rails have been taken in this market for some time, but light rail business has been very good and the demand from railroads for track fastenings has been quite pronounced. The spike market has been somewhat unsettled of late. The Pennsylvania Steel Co. made sales of electric street car rails amounting to over 500 tons in this market.

See Pittsburg report for prices on standard sections.

On light rails, Chicago delivery, we quote as follows: Light rails, 40 and 45-pound, $27; 30 and 35-pound, $27.75; 16, 20 and 25-pound, $28; 12-pound, $29.

Light section re-layers, 45 pounds and under, subject to inspection, $21 to $23; standard section re-laying rails, subject to inspection, $23.50 to $24.00.

Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.75c to 1.85c; smaller size spikes, 1.80c to 1.90c, base; track bolts with square nuts, 2.50c to 2.60c, base; with hexagon nuts, 2.65c to 2.75c.

Plates.—The demand for plates has been for some time, and still is, rather

quiet. Prices are nominally maintained at quoted figures but on desirable business for a large tonnage concessions might be made.

We quote, Chicago delivery, as follows: Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.63c to 1.68c. For extras see Pittsburg report.

Store quotations are without change, as follows: Tank steel, ¼ inch and heavier, up to 72 inches wide, 1.90c to 2c; from 72 inches to 96 inches wide, 2c to 2.10c; 3-16 inch up to and including 60 inches wide, 2c to 2.10c; 72 inches, 2.25c to 2.35c; No. 8, up to 60 inches wide, 2.05c to 2.15c. Flange and head quality, 25c extra.

Sheets.—The sheet market is still in the unsettled condition which has been noted in these reports for two or three weeks and no pretense is made to adhere to schedule prices, there being concessions ranging from $1.00 to $3.00 per ton, according to the material and character of the business. This does not apply to blue-annealed sheets, demand for which is still quite strong.

For mill prices, see Pittsburg report. Freight to Chicago, 18 cents.

We quote store prices at Chicago as follows: No. 10, 2.25c to 2.35c; No. 12, 2.30c to 2.40c; No. 14, 2.35c to 2.45c; No. 16, 2.45c to 2.55c; Nos. 18-20, 2.80c to 2.90c; Nos. 22-24, 2.85c to 2.95c; No. 26, 2.90c to 3c; No. 27, 2.95c to 3.05c; No. 28, 3c to 3.10c; No. 30, 3.30c; galvanized sheets, Nos. 10 to 16, 3.20c to 3.30c; Nos. 18 and 20, 3.35c to 3.45c; Nos. 22 to 24, 3.50c to 3.60c; No. 26, 3.50c to 3.80c; No. 27, 3.90c to 4c; No. 28, 4.10c to 4.20c; No. 30, 4.50 to 4.60c.

Wire Products.—Stocks in intermediate hands are very light and for this reason there is considerably more inquiry than might otherwise be the case at this time of year, when farmers are busy with their crops rather than with such matters as fencing. The fall business is expected to be very heavy this year, especially as the prospects for large crops are very good.

We quote, Chicago delivery, as follows:

Wire nails, jobbers' carload lots, $2.03; retailers, carload lots, $2.08; retailers' less than carload lots, $2.18; painted barb wire, jobbers' carload lots, $2.03; retailers' carload lots, $2.08; retailers' less than carload lots, $2.18; with 30c for galvanizing; plain wire to jobbers, $1.83; plain wire, retailers' carload lots, $1.88; staples, bright, $2.03.

Merchant Pipe and Tubes.—Nothing outside of a routine character of trade is reported from this market. The bulk of business in this territory is done with industrial establishments and the demand does not vary to any extent from time to time.

For mill discounts, see Pittsburg report.

We quote, out of store, as follows: Wrought steel pipe, black, ⅛ inch to ¼ inch, 67.2 per cent; ⅜ inch, 68.2 per cent; ½ inch, 71.2 per cent, ¼ inch to 6 inches, 75.2 per cent; 7 inches to 12 inches, 68.2 per cent. Iron pipe, about 5 points higher.

Lap weld steel tubes, 2¾ inches to 5 inches, 60 to 62 per cent; charcoal iron tubes, 2¼ inches to 4 inches, 48 to 50.

Cast Iron Pipe.—In a small way, there has been a good tonnage moving in this line, during the past week. Sales ranging from 250 tons to 500 tons have been the rule and the general run has been keeping up very well. At present there are no large tonnages in sight.

We quote, prices f. o. b. Chicago, as follows: 4-inch water pipe, $28.50; 6 to 16 inches, $27.50; larger sizes, $26.50; gas pipe, $1 a ton higher.

Old Material.—Quietness continues to be the dominating feature in the Chicago market, and while there is a little occasional inquiry for scrap, the amount of business going is very small. The Chicago, Milwaukee & St. Paul had a list of 1,600 tons of scrap, which closed yesterday, and the Great Northern Railway is out with a list amounting to 7,000 tons, which closes June 17. The weakness in the market is shown in such items as old rails, railroad malleable, and one or two others.

We quote, gross tons, as follows:

See copy for daily 6 pt. Table.

Old car wheels	$15.00 to 15.50
Old iron rails	17.00 to 17.50
Rerolling rails (4 ft. and over)	16.50 to 17.00
Old steel rails (2 ft. and under)	13.75 to 14.25
Frogs, switches and guards	13.00 to 13.50
Heavy melting steel	13.00 to 13.50
Shoveling steel	12.50 to 13.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.75 to 13.25
No. 2 R. R. wrought	11.75 to 12.25
Arch bars and transoms	15.50 to 16.00
Knuckles, couplers and springs	12.50 to 13.00
Shafting	17.50 to 18.00
Iron car axles	20.00 to 20.50
Steel car axles	20.00 to 20.50
Locomotive tires	18.00 to 18.50
Dealers' forge	11.50 to 12.00
Pipes and flues	9.50 to 10.00
No. 1 cast, 150 lbs. and less	13.00 to 13.50
No. 1 busheling	10.50 to 11.00
No. 2 busheling	8.25 to 8.75
No. 1 boiler cut	10.00 to 10.50
Boiler punchings	15.00 to 15.50
Cast and mixed borings	5.00 to 5.50
Machine shop turnings	8.00 to 8.50
Railroad malleable	11.75 to 12.25
Agricultural malleable	11.25 to 11.75
Stove plate and light cast scrap	11.25 to 11.75
Angle bars, splices, etc. (iron)	15.00 to 15.50
Angle bars, steel	13.00 to13.50

The Sloss-Sheffield Steel & Iron Co. relighted its North Birmingham, Ala., blast furnace, June 1, after the stack had been completely overhauled.

Buffalo bridge and structural iron workers have struck for a wage increase from 50 to 60 cents an hour.

CLEVELAND.

Very Low Prices on Pig Iron—Structural Contract.

Office of THE IRON TRADE REVIEW,
Penton Bldg., Chestnut and E. 12th, June 14.

Iron Ore.—There are more vessels than needed for the ore trade, and some of them are finding difficulty in obtaining cargoes. Some ore is being placed on dock owing to the unwillingness of furnaces well supplied with ore to receive additional tonnage.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $5; Mesabi Bessemer, $4.75; old range non-Bessemer, $4.20; Mesabi non-Bessemer, $4.

Pig Iron.—There is considerable inquiry in some districts represented by Cleveland agencies, but the market in Cleveland and immediate vicinity is dull. Some very low prices have been made in the valleys, $14.50 for No. 2 foundry, valley, having been shaded, while malleable has sold as low as $14.50, and $16 has been shaded on Bessemer. The Babcock & Wilcox Co., which was inquiring for 5,000 tons for delivery at Barberton, O., has notified the trade that the inquiry is withdrawn. For prompt delivery we quote, delivered in Cleveland, as follows:

No. 1 foundry	$15.75 to 16.00
No. 2 foundry	15.25 to 15.50
No. 2 Southern	16.10 to 16.35
Gray forge	15.15 to 15.50
Bessemer	16.65 to 16.90
Lake Superior charcoal	18.50 to 19.00
Jackson Co. 8 per cent silvery	20.00 to 20.50

Coke.—There is some inquiry for foundry coke for delivery during the last half of the year, and very few actual transactions have been recorded. We quote Connellsville furnace coke at $1.70 to $1.75 for prompt delivery, and $1.90 to $2 for last half. We quote Connellsville foundry coke for prompt delivery at $2.25 to $2.59; for last half, at $2.40 to $2.60.

Finished Materials.—The contract for the steel work for the 12-story building which will be erected on Euclid avenue next to the Cleveland Trust Co. building by the City Investment Co., has been awarded to the Forest City Iron & Steel Co. About 1,000 tons of steel will be required, but the Forest City company will take part of this tonnage from stock, and is in the market for 800 tons. Owing to the price shading on structural material in some parts of the country, there is unusual interest in the awarding of this contract. The leading in-

terest, which has been quoting 1.55c, has reduced its price to 1.50c, and some independent interests would probably be glad to take the tonnage at 1.45c. The steel bar market continues fairly active, and some contracts covering three-month periods have been made with forging companies. An occasional belated buyer hails from the agricultural implement concerns, but nearly all of them have contracted. In the sheet market, the demand from the automobile trade for pickled steel sheets for bodies is an important factor. A very large tonnage has recently been sold for this purpose. The bar iron market drags, and mills have all they can do to get enough orders to keep in operation.

Old Material.—The market for scrap in this district continues dull with prices largely nominal. The approach of the summer season is expected to result in still further slowing up of business. There has been no change of prices since our last issue, and we continue to quote, gross tons, f. o. b. Cleveland, as follows:

Old iron rails	$16.50 to 17.00
Old steel rails (under 6 feet)	15.00 to 15.50
Old car wheels	14.00 to 14.50
Old steel boiler plate	12.00 to 12.50
Malleable iron (railroad)	14.00 to 14.50
Steel axles	19.50 to 20.00
Malleable iron (agricultural)	12.00 to 12.50
Heavy steel	13.75 to 14.00
Country mixed steel	12.00 to 12.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$14.00 to 14.50
No. 1 busheling	12.00 to 12.50
No. 1 machine cast	12.25 to 12.50
Axle turnings	10.00 to 10.50
Machine shop turnings	7.25 to 7.75
Grate bars	10.50 to 11.00
Pipes and flues	11.00 to 11.50
Tank iron	9.00 to 9.50
Sheet iron	6.00 to 6.50
Wrought drilling	7.25 to 7.75
Stove plate	11.00 to 11.50
Cast borings	6.50 to 6.75

CINCINNATI.

Conditions Are Unsettled But Prices Appear Unchanged.

Office of THE IRON TRADE REVIEW,
11 Blymyer Bldg., June 14.

Pig Iron.—Market conditions present such an unsettled appearance, that it is rather a difficult proposition to interest buyers to any great extent, with the exception of those actually needing iron for immediate requirements. A number of small sales, as well as several minor inquiries, have resulted during the week, but the situation is quiet and uneventful. Southern furnaces, particularly those of the Alabama district, are said to be maintaining a $12 basis for any tonnage calling for fourth quarter delivery, and are selling at this figure. This is also said to be nominally the quotation for third quarter, yet on desirable business some Alabama irons are said to be obtainable at $11.50, delivery running through the entire third quarter. The situation as regards northern irons is practically unchanged, $15 Ironton basis representing the market for foundry grades. Several of the large eastern pipe interests have bought considerable iron during the week, and have several inquiries pending for further tonnage. The lower grades have been in more active demand, with some sales that show the present ratio firmly maintained. A northern Ohio melter bought 600 tons of No. 3 foundry, at schedule prices, delivery covering last half. A local concern bought 100 tons southern No. 2 foundry, for June and July delivery. There was a sale of 125 tons southern No. 2 foundry, to a manufacturer in northern Ohio at $12, delivery running August to December inclusive. A central Ohio melter bought about 1,500 tons of low phosphorus iron, for third and fourth quarter. The largest inquiry in evidence comes from a southern Ohio manufacturer, and is for 1,000 tons of No. 4 northern, 1,000 tons No. 2 and 300 tons No. 3 southern, and 200 tons high silicon, delivery running through the rest of the year. We quote prices based on freight rate of $3.25 from Birmingham and $1.20 from Ironton as follows:

Southern foundry No. 1	$15.25 to 15.75
Southern foundry No. 2	14.75 to 15.25
Southern foundry No. 3	14.25 to 14.75
Southern foundry No. 4	14.25 to 14.75
Southern No. 1 soft	15.25 to 15.75
Southern No. 2 soft	14.75 to 15.25
Southern gray forge	14.25 to 14.75
Northern No. 1 foundry	16.45 to 16.70
Northern No. 2 foundry	15.95 to 16.20
Northern No. 3 foundry	15.45 to 15.70
Jackson county 6 per cent silicon	18.70
Jackson county 8 per cent silicon	19.70
Jackson county 10 per cent silicon	20.70

Coke.—Demand for furnace grades shows some improvement, and a number of contracts for large tonnage are pending, for the year's requirements. Foundry inquiry is also better, and some satisfactory buying has resulted. We quote from the leading coke producing districts as follows:

Connellsville district:	Prompt shipment.	Last half of year 1910.
Foundry coke	$2.10 to 2.25	$2.25 to 2.50
Furnace coke	1.60 to 1.75	1.85 to 2.15
Wise county district:		
Foundry coke	2.00 to 2.15	2.15 to 2.25
Furnace coke	1.65 to 1.75	*Sliding scale basis.
Pocahontas district:		
Foundry coke	2.10 to 2.25	2.25 to 2.50
Furnace coke	1.75 to 1.90	1.90 to 2.10
New River:		
Foundry coke	2.40 to 3.00	2.50 to 3.25
Furnace coke	2.20 to 2.30	2.20 to 2.30

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16⅔ per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material.—Structural shapes and plates are quotable at 1.50c to 1.55c and bars 1.45c Pittsburg. A fairly satisfactory amount of contract business has been closed with the implement interests aggregating considerable tonnage. Specifications along structural lines are coming in slowly, and inquiry is light. Bids for the new addition to the Frst National Bank, embracing about 160 tons, were opened today.

Old Material.—Shipments in some instances are being held up, and the situation has a very unfavorable appearance. Dealers can, as a rule, sell, if they are willing to make the price sufficiently attractive. Prices are nominally unchanged, and as near as can be secured are as follows:

No. 1 R. R. wrought, net tons	$12.00 to 12.50
No. 1 machinery, net tons	11.50 to 12.00
No. 1 busheling, net tons	11.00 to 11.50
Old iron rails, gross tons	17.50 to 18.00
Old iron rails, rerolling	17.00 to 17.50
Old short lengths, gross tons	14.50 to 15.50
Old iron axles, net	18.00 to 19.00
Heavy melting scrap, gross tons	12.00 to 12.50
Stove plate, net tons	9.50 to 10.00
Heavy turnings, net tons	8.50 to 9.00
Cast borings, net tons	6.00 to 6.50
Car wheels	15.00 to 15.50
Grate bars	9.50 to 10.00

PHILADELPHIA.

Pig Iron Moderate—Weakness in Shapes—New Scrap Association.

June 14.

Pig Iron.—Contracting by the general class of pig iron buyers scarcely appears as promising as it did several weeks ago. Consumers are not placing their orders freely and the new bona fide inquiry coming out is only fair. Prices are not especially firm and some business is going at slight concessions where the condition of order books makes the furnace a little more anxious to secure tonnage. There is sufficient iron, nevertheless, moving in new business and by requisitions against contracts to keep the output of the curtailed merchant furnace capacity in the east well engaged and stocks show slight changes. Railroad companies have been among those to put out new inquiries for iron in the week. The Pennsylvania railroad is taking prices on 5,000 to 7,000 tons of foundry iron and 750 tons of charcoal iron for third quarter delivery at Altoona, and the Baltimore & Ohio railroad is out for 1,000 tons for Baltimore and western shops. The frequent sales of small lots of foundry iron which were to be noted several weeks ago are not as numerous. The cast iron pipe companies in this territory took about their usual weekly quantities of low-grade iron, one of them closing for 1,500 to 2,000 tons of southern iron at $10.75 to $11 for gray forge and No. 4. A sale of 300 tons of standard northern forge at $16 delivered is noted, but this is rather a good price for the seller as this grade may be bought con-

siderably lower. The 1,000 tons for a steel company is still pending. One buyer in this territory has offered to take on a large tonnage of southern No. 2 at $11.50, Birmingham, but such a transaction has not been arranged.

In steel-making irons, there is additional evidence that some of the leading eastern consumers of basic have overbought their needs under the present rate of consumption and considerable iron that was engaged for second quarter will not be delivered until the third quarter. Though basic users have considerable iron bought ahead, they will need some further tonnage before Sept. 1, and some buying is expected soon. This is not likely to be of large proportions, however. Basic prices are largely nominal in the absence of sales, but makers who have been pressing the consumers to buy, have offered this grade at $16 delivered and it is not unlikely that this figure could be shaded on competitive business. Sellers of standard low phosphorus report transactions to different localities in the week, aggregating several thousand tons and at a Philadelphia delivery basis of $23 to $23.25.

For prompt and third quarter delivery we quote as follows:

No. 1X foundry	$17.50 to 17.75
No. 2X foundry	16.75 to 17.00
No. 2 plain	16.25 to 16.50
Gray forge	15.50 to 16.00
Basic	15.75 to 16.00
Low phosphorus	22.75 to 23.25
No. 2 Birmingham	16.00 to 16.25
No. 2 Virginia	16.80 to 17.00

Ferro Alloys.—The low prices ruling upon ferro-manganese have impelled some steel companies in this territory to recently close for their requirements after Jan. 1, 1911, and about 4,500 tons have been sold for first half. This alloy has been offered for first half as low as $40 and the market ranges from $40 to $41 for any delivery. Upon a large inquiry for spiegeleisen for a western Pennsylvania interest, which has been pending for some time, it is reported that less than $25 c. i. f. (duty unpaid) has been named.

Finished Material.—In some lines of finished products, particularly plain structural shapes, there is more evidence of price softness and the general tone of the market in mill materials is only slightly more reassuring. The minimum price on shapes of 1.45c, Pittsburg, which has been made on preferred business for some time, appears more general and there are late cases where eastern makers have gone below this level on competitive tonnages. While there is a greater shape business being offered, this has not had the effect of strengthening the market. Some large mills can make deliveries within a few days' period. A well sustained amount of plate business is coming out from miscellaneous sources, but the mill capacities of some makers are not being pushed. Prices are quite firm. Eastern mills can make deliveries promptly and Pittsburg makers in about 30 days. There continues a good demand for steel bars, tin plate and for some of the special lines of products. Some mills are not promising tin plate shipments before Oct. 1. On some contracts for finished and semi-finished materials expiring July 1, there is some reluctance of buyers to commit themselves upon their requirements for renewals owing to general uncertainty of business sentiment.

Among the principal tonnages under negotiation in the week were 4,000 tons of shapes for the Lenoir, Tenn., car works of the Southern railroad to be used for car building. Bids have been taken but an award has not been announced. Fgures have gone in on 600 to 700 tons for a hotel for the Washington Hotel Co. and on 600 tons for a commercial building for the Washington Investment Co., both of Washington, D. C. Bethlehem sections will be used in both these contracts. The 700 tons for the Virginia Trust Co. building, Richmond, Va., will probably be let this week. An apartment for G. F. Gatins at Atlanta, Ga., about 900 tons, is up. Bids for the 58,000 tons for the Panama canal mitre gates are going in this week.

We quote for delivery in Philadelphia and vicinity as follows: Structural shapes 1.60c to 1.65c; plates 1.65c to 1.70c; steel bars 1.60c to 1.65c; iron bars 1.45c to 1.50c; 4 x 4-inch open-hearth rolling billets $28 to $29, Eastern mill.

Old Material.—Seven of the leading consumers of wrought scrap in eastern territory have inaugurated a plan of buying their requirements through a central agency similar to that which has been pursued for some time by the principal users of heavy melting steel in the east. The interests in the new association include bar iron, nut and bolt, horse shoe manufacturers and other iron mills which have individually been obtaining their old material needs in the open market. A fixed price of $16.50, delivered, for No. 1 railroad wrought is being offered to the dealers. This price represents the delivered figure at any one of the several points at which the mills are located. The formation of the iron association indicates that from a buyer's standpoint the steel syndicate has been a commercial success Conditions in the market are rather quiet and selling is of limited tonnage. Holders of scrap are somewhat reluctant to dispose of their material

Old steel rails (rerolling)	$16.75 to 17.25
Heavy melting steel	14.50 to 15.00
Old car wheels	14.50 to 15.00
Old iron car axles	25.00 to 26.00
Old steel car axles	20.00 to 21.00
No. 1 railroad wrought	16.50 to 17.00
Wrought pipe	15.00 to 15.50
Cast borings	8.25 to 8.75
Wrought turnings	9.50 to 10.00
Heavy cast scrap	15.00 to 15.50
Railroad malleable	14.00 to 14.50
Stove plate	10.00 to 10.50

NEW YORK.

Tone of Pig Iron Market Not so Strong—Low Quotations on Shapes.

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., June 14.

Iron Ore.—The eastern iron ore situation has few features of interest. Domestic miners report orders against contracts well maintained but lake interests are understood to have some trouble to get shipping instructions. The foreign ore movement continues about as it has been.

Pig Iron.—The tone of the pig iron market in the east is less cheerful, owing to the fact that prices are easier. While the average level of quotations openly made shows about the same minimum, there appears to be more willingness by some furnaces to shade their prices to meet the buyer's ideas. These concessions are not large, but are just sufficient to take the business. The new tonnage coming out and being closed is quite fair, but the price irregularity is making the general outlook less satisfactory. The buying of foundry irons in New Jersey and lower New York territory is less active, but New England consumers are coming forward more freely with their needs. Prices there are upon the basis of $17.25 for No. 2 X, but users now in the market believe they will be able to buy before the week is out at $17, delivered, from New York state furnaces other than Buffalo. A Massachusetts machinery interest is asking prices on 2,000 to 3,000 tons. Another machinery builder in the same state who has been out for 6,000 tons, is about to close. Eastern Pennsylvania makers are openly expressing their minimums as $16, furnace, for No. 2X, or $16.70, tidewater, but $15.75 has been done, and there are reports of even lower prices. The basic iron market in the east has been established squarely at $15.75, delivered, as some round lots for third quarter shipment have been sold upon that basis. This represents a definite concession, for, though the market has been weak, prices have been nominal in the absence of buy-

ing. The American Steel & Wire Co. has closed for its year's requirements of low phosphorus iron for its Worcester, Mass., plant. Owing to the electric furnace practice at this plant which has materially cut down the need of low phosphorus iron, the tonnage required under this contract is indefinite and may run as high as 500 tons monthly, though it will probably be considerably less.

We quote, delivered at New York tidewater for prompt and third quarter shipment, as follows:

Northern foundry No. 1	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
No. 2 Virginia	16.80 to 17.00
No. 2 southern foundry	15.75 to 16.25
Malleable	17.00 to 17.25
Gray forge	15.25 to 15.50

Ferro-Alloys.—A western Pennsylvania steel interest which has been in the market for a large block of spiegeleisen for delivery up to March 1, 1911, is understood to have been quoted under $25, c. i. f., and is about to close, although it may not take the full 15,000 tons asked for. The low prices on ferro-manganese have been bringing large consumers quietly into the market and some large lots for delivery over extended periods of next year have been closed by eastern and middle western steel interests at $40, Baltimore, and slightly higher. The sale of 1,000 tons for last half to the middle west is also noted. There are reports in the market that prompt material has sold at less than $40, seaboard, but this may have been a New Orleans basis, which takes a lower freight to some consuming points than Baltimore. We quote 80 per cent ferro-manganese at $40 to $41, seaboard, covering all deliveries, and 50 per cent ferro-silicon at from $56.50 to $57.50, seaboard.

Cast Iron Pipe.—The market in cast iron pipe in the east lacks life and the tonnage being placed shows slight increase. Low prices continue to be made with some makers. We quote 6-inch pipe from $25 to $25.50, f. o. b. tidewater, in carload lots.

Finished Materials.—Conditions in finished materials are changing but slightly. In structural material, tonnage for general building work other than that by the railroads is coming quite freely, and at the present rate the first half contracts will amount to about 750,000 tons. This tonnage, though apparently large, is not of sufficient volume to fill capacities and, as prices continue low, the situation is not viewed with satisfaction. Quotations below 1.45c, Pittsburg, for plain material have been made in some cases. Steel bars and tin plate are active and the tonnage going to wire mills is more encouraging. Bar iron prices are weak and fair-sized sales of the refined product have been made at 1.45c, New York, with lower quotations on common iron.

The railroads generally are not releasing a great deal of business, but the American Bridge Co. this week secured the award of 15,000 tons for the Kentucky & Indiana railroad bridge across the Ohio river at Louisville, which is to be erected jointly by the Baltimore & Ohio, Louisville & Nashville, Southern and Monon railroads. The bridge will be of ordinary truss construction. The American Bridge Co. has also taken 3,000 tons for the new freight house of the Missouri, Kansas & Texas at St. Louis, 1,300 tons, through the contractor for shops for the Chicago, Northwestern railroad shops at Chicago, 300 tons for car barns for the Denver Tramway Co., while about 2,000 tons in small bridges and shop construction about equally divided between the leading interests of the independents was also closed in the week. The McClintic-Marshall Construction Co. took 300 tons for a boiler shop for the Southern railroad at Spenser, N. C. The Erie railroad is again taking bids for a lift bridge at Cleveland, but the pending tonnage from the railroads is not large.

Other structural orders of the week include 3,000 tons to the Morava Construction Co. for a building at Milwaukee, for the International Harvester Co.; 1,500 tons for the Olympic Club at San Francisco to Milliken Brothers, Inc.; 600 tons to the American Bridge Co. for a hot metal bridge for the Republic Iron & Steel Co., at Youngstown, O.; 500 tons to the Indiana Bridge Co. for a shop building for the Oliver Plow Co., South Bend, Ind.; 400 tons to the Milwaukee Bridge Co. for buildings for the Mineral Point Zinc Co., Mineral Point, Wis.; 600 tons to the Virginia Bridge & Iron Works for pier sheds at Jacksonville, Fla., for the Clyde Steamship Co.; 900 tons to the Kenwood Bridge Co., for new plant of the Simmonds Mfg. Co., at Lockport, N. Y.; 500 tons to the Pacific Rolling Mills for the Lachmann building at San Francisco; 300 tons to the Illinois Steel Co. for a shop for the Rock Island Plow Co., Rock Island, Ill.; 270 tons to the South Halstead Street Iron Works, for a foundry for the Crane Co., Chicago; 200 tons to the Pittsburg Bridge & Iron Works for the Canton Electric Co., Canton, O. The 950 tons for the two buildings for the Wells-Fargo Express Co., Chicago, have gone to the Morava Construction Co.

New York lettings of the week include 1,300 tons to the American Bridge Co. for the Duncan warehouse at West and Hubert streets, and 1,200 tons for a building at Sixth avenue and Thirty-first street, 500 tons for an office building at Madison avenue and Thirty-first street, and 400 tons for a roof house for Macey's store, Thirty-fourth street, all of Milliken Bros., Inc. We quote, New York delivery, as follows:

Angles, 3 to 6 inches x ¼ inch and heavier, 1.66c to 1.71c; beams, 3 to 15 inches, 1.66c to 1.71c; tees, 3 x ¼ inch and heavier, 1.66c to 1.71c; plates, carload, tank, 1.66c to 1.76c; boiler steel, 1.86c to 1.91c; marine boiler, 2.16c to 2.21c; bar iron, 1.45c to 1.50c; soft steel bars, 1.61c to 1.66c.

Old Material.—The report that a number of the large consumers of wrought scrap have entered into a plan of buying through one interest similar to the syndicate method of the heavy steel users in the east, has been received in this market with much interest. The effect of these associations is against the dealers without yards, the middlemen and the speculative traders. Eastern scrap consumers are more freely using up their stocks in mill yards, which have been quite heavy in some cases, and they are cleaning up these supplies preparatory to the usual mid-summer shut downs. As a consequence, buying is rather limited, but scrap owners also are not inclined to sell freely because of the low prices offered. Sales of heavy steel at $14.65, delivered, eastern mill, are noted, but dealers are having difficulty to cover with yards at offers of $14.25, delivered. Another cargo of 800 gross tons of Panama scrap will be offered for sale June 17. We quote gross tons, prices New York dealers will pay at tidewater with the exception of cast scrap which has a local demand, as follows:

Old steel rails (rerolling)	$14.50 to 15.00
Old car wheels	13.50 to 14.00
Old iron axles	21.50 to 22.00
Old steel shafting	16.50 to 17.00
Heavy melting steel	12.50 to 12.75
No. 1 R. R. wrought	14.50 to 15.00
Iron track scrap	14.00 to 14.50
Wrought pipe	12.75 to 13.25
Cast borings	6.50 to 7.00
Wrought turnings	8.00 to 8.50
Heavy cast scrap	13.50 to 14.00
Railroad malleable	13.00 to 13.50
Stove plate	9.50 to 10.00
Grate bars	10.50 to 11.00

ST. LOUIS.

One Lot of 1,000 Tons of Southern Iron Sold—Other Sales Small.

June 13.

Pig Iron.—The largest sale of pig iron reported in the St. Louis territory last week was on Friday, when a local sales agent closed a deal for 1,000 tons of southern Nos. 2 and 3 for delivery over the last half of the year. The selling price was not made public. Quite a number of sales of car lots were made, however, mostly for spot delivery, and there are in-

quiries in the market for probably 5,000 tons in small lots and from various dealers. The largest of these probably is one for 400 tons for southern No. 2 for last half delivery. One of the orders placed last week was for 300 tons southern No. 2 for shipment over the last half. Southern No. 2 is selling at $11.50 to $12, Birmingham. Ohio iron is quoted at $15 for immediate and second half delivery. Our quotations on southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$15.75 to 16.25
Southern No. 2	15.25 to 15.57
Southern No. 3	14.75 to 15.25
Southern No. 4	14.25 to 14.75

Coke.—Deals in coke were a little more numerous than in pig iron, and inquiries are likewise better. One local agent is negotiating to close a contract for 500 tons of coke, and the deal in all probability will be consummated before the middle of the week. Another agent has an inquiry for 4,000 tons of coke to be shipped into Northern Illinois, which probably will be closed within a few days, and there are quite a number of scattering inquiries for small tonnages.

Connellsville 72-hour foundry coke is firm at $2.25 to $2.50, ovens; Connellsville 48-hour furnace, $2 to $2.25; Virginia 72-hour, $2.25 to $2.50; Virginia 48-hour, $2 to $2.25. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields, when shipment is beyond St. Louis. Bi-product coke is offered at $5.50, St. Louis.

Finished Material.—The following base prices are quoted out of stock, St. Louis: Tank plates, ¼ inch and heavier, up to 72 inches wide, $1.95 to $2.05; from 72 inches to 96 inches, $2.05 to $2.15; sheets, No. 10, blue annealed, $2.30 to $2.40; bar iron, $1.85 to $1.95; soft steel bars, $1.95 to $2.05.

Old Material.—The scrap iron market remains in a state of inactivity, with prices ruling nominally as follows:

Old car wheels	$17.00 to 17.50
Old iron rails	17.50 to 18.00
Rerolling rails (4 ft. and over)	16.00 to 16.50
Old steel rails (2 ft. and under)	14.00 to 14.50
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	24.50 to 25.00
Frogs, switches and guards	13.00 to 13.50
Heavy melting steel	13.00 to 13.50
Shoveling steel	12.50 to 13.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.75 to 13.25
No. 2 R. R. wrought	11.50 to 12.00
Arch bars and transoms	16.00 to 16.50
Knuckles, couplers and springs	12.00 to 12.50
Shafting	15.75 to 16.25
Iron car axles	20.00 to 21.00
Steel car axles	20.00 to 21.00
Locomotive tires	17.00 to 17.50
No. 1 country wrought	11.00 to 11.50
Pipes and flues	9.75 to 10.25
No. 1 cast 150 lbs. and less	13.00 to 13.50
No. 1 busheling	11.00 to 11.50
No. 2 busheling	8.00 to 8.50
No. 1 boiler cut	9.75 to 10.25
Boiler punchings	10.25 to 10.75
Cast and mixed borings	6.00 to 6.50
Machine shop turnings	9.00 to 9.50
Railroad malleable	12.00 to 13.00
Agricultural malleable	10.00 to 10.50
Stove plate and light cast scrap	10.00 to 11.00
Angle splice bars, iron	15.00 to 15.50
Angle splice bars, steel	14.00 to 14.50

BUFFALO.

Fair Inquiry Reported—Some Shading Alleged on Malleable.

Office of THE IRON TRADE REVIEW
932 Ellicott Square, June 14.

Pig Iron.—Inquiries have been coming in fairly good numbers and size during the past week, and the tonnage placed compares well with that of other weeks during the past few months, but still business in pig iron is dull. Some of the inquiries called for prices that were not acceptable to the furnaces and were refused, while some are still pending. It is said that some of the sales made will not yield the furnace interests much margin of profit. There has been no marked improvement in consumption and the indications are not particularly encouraging, as the foundries do not seem disposed to take iron, many of them appearing well supplied. Prices show little change from those of last week. It is said that malleable can be bought for a shade less than the prices quoted below. However, 500 tons of malleable were sold at $15.75 while a lower price was refused for considerably larger tonnage. We quote f. o. b. furnace as follows:

No. 1X foundry	$16.00 to 16.50
No. 2X foundry	15.50 to 16.00
No. 2 plain	15.25 to 15.75
No. 3 foundry	15.00 to 15.50
Gray forge	15.00 to 15.50
Malleable	15.75 to 16.25
Basic	15.75 to 16.25
Charcoal	19.00 to 19.50

Finished Material. — Business in structural lines has been dull during the past week. Less than half a dozen jobs calling for any considerable tonnage are pending and no important lettings have been made. A few good specifications will probably be ready for figures in a week or two. Green & Wicks are preparing plans for the new machine shop and office building which is to be erected by the Niagara Machine & Tool Works, requiring about 200 tons. Large tonnage will be needed for the rebuilding of the Sherman house at Jamestown for which Esenwein & Johnson, Buffalo, are preparing plans. The new building will be fireproof, eight stories, 120 feet front. Specifications have been submitted to contractors for a steel building 350 x 450 feet which the Simonds Mfg. Co. is to build at Lockport. Later the company will contract for an office building. Esenwein & Johnson are preparing plans for a seven-story building 90 x 120 feet to be erected for Keiser & Boasberg, tobacco dealers, and also a three-story store and office building for H. H. Littell.

There is an improvement in deliveries except on bars, for which the demand is strong, but this is said to be due more to increased capacity than lack of business. The national questions which have arisen seem to have had little effect on inquiries from the railroads. The Toronto, Hamilton & Buffalo has announced from the head office in Hamilton its intention of making the line between Hamilton and Buffalo double track, but so far no inquiries on this work have been received in the local field, and the plans of the company are not known here. The Southwestern New York Traction Co. has asked the Public Service commission to construct an electric railroad in Allegheny county from Bolivar to Wellsville, a distance of 18 miles.

Old Material.—There is no change in the scrap market. Neither buyers nor sellers are showing any marked inclination to transact business, and the outlook for the future is not particularly encouraging. The prices here given are nominal. We quote, gross tons, as follows:

Heavy melting steel	$13.00 to 13.25
No. 1 railroad wrought scrap	14.00 to 14.50
No. 1 railroad and machine cast scrap	12.75 to 13.25
Old steel axles	17.00 to 18.00
Iron axles	22.50 to 23.00
Car wheels	14.00 to 15.00
Railroad malleable scrap	13.00 to 13.50
Machine shop turnings	7.00 to 7.50
Cast iron borings	5.00 to 5.50
Low phosphorus steel scrap	18.00 to 18.50
Old iron rails	16.00 to 16.50
Tank iron	11.00 to 11.50
Sheet iron	7.50 to 8.00
Stove plate	11.50 to 12.00
Pipes and flues	11.00 to 11.50
Grate bars	10.50 to 11.00
Boiler plate	11.75 to 12.25

BIRMINGHAM, ALA.

Conditions Not Favorable for a Stable Market in Pig Iron.

June 13.

Pig Iron.—The aggregate tonnage of iron booked the past week was small, outside of a reported sale of some 8,000 to 10,000 to the pipe interests. While this is "common" talk in pig iron circles, it is not confirmed at the present time. The price paid is said to range from $11.50 to $12 per ton at the furnace—$11.50 price being for prompt and third quarter delivery, and $12 per ton for fourth quarter shipment. The writer visited headquarters of all the producing interests in the district, except one, and to a man the sales managers stated that for such iron as they had offered, $12 per ton at the furnace had been asked. It is not denied, however, that for prompt shipment—on certain

grades (those being slightly off in silicon or phosphorus content) $11.50 per ton could be done. On the whole, conditions the past week were not as favorable for a stable and settled base price as those prevailing the week previous. The rate agitation has had its bearing on the market, though it seems to have been "patched up" in a way by the presidents of the lines interested and the government; and while it seems the railroad companies have not been inclined to hold up orders already placed, they are not active in their demands for additional material. To say the least, a damper has been thrown on the situation, and it will probably take all the summer for things to adjust themselves to where they were before this question arose. While one or two of the iron companies down south may be able to take on some iron as low as $11.50 at the furnace and enjoy some profit, it is a fact that quite a few are not in a position to do this; and it is pretty safe to count on them going out of blast rather than indulge too freely in these low figures.

Cast Iron Pipe.—There has been no change in conditions bearing on pipe matters; and, barring one or two fair size lettings for consideration, the market was without feature. Quotations made by the different interests have undergone no change; and without the knowledge of any material tonnage coming up to have its bearing on price-making, the following prices, per net ton, are given: Four to 6-inch, $22; 8 to 12-inch, $20; with $1 a ton extra for gas pipe.

Old Material.—The scrap market continues stagnant. Local dealers report that the business transacted is very small, and that, while they may be disposed to buy and pile the scrap for better times, parties who own same are not disposed to entertain a proposition at the exceedingly low prices prevailing. Prices being quoted by dealers are only nominal, and are as follows, per gross ton, f. o. b. cars here:

Old iron rails	$14.00 to 14.50
Old steel axles	17.00 to 17.50
Old iron axles	18.00 to 18.50
No. 1 R. R. wrought	13.00 to 13.50
No. 2 R. R. wrought	11.00 to 11.50
Dealers' wrought	10.50 to 11.00
Old steel rails	11.00 to 11.50
No. 1 machinery	10.50 to 11.00
No. 1 steel	10.50 to 11.00
Old standard car wheels	13.00 to 13.50
Light castings, stove plate	8.50 to 9.00

The Noelke-Richards Iron Co., Indianapolis, has secured the contract for the structural steel in the new warehouse to be built by The Pennoyer Teaming Co., Chicago, involving 500 tons.

BRITISH IRON MARKETS.

Pig Iron Users Not Inclined to Buy—Finished Material Easier.

Office of THE IRON TRADE REVIEW
Prince's Chambers, Corporation St.,
Birmingham, Eng., June 4.

Another unsatisfactory week in the iron trade has to be recorded, with a further slight fall in Cleveland iron which is now down to 49s 5½d ($12.11) for No. 3, the lowest figure for close upon 12 months. For three months, makers will accept 50s 4½d ($12.33). The amount in store is 435,021 tons, a slight increase on the week. General consumers are not at all inclined to buy, and their stocks must now be getting rather large. In the Birmingham district, the pig iron market shows decidedly more strength, much to the disgust of the makers of finished iron.

Statistics show that May was rather a bad month for the Cleveland pig iron district. The total export of pig iron was only 85,524 tons, the poorest, with one exception, for 18 years, and that exception was solely due to a pig iron gamble in 1905. It compares with 119,107 tons for April. Practically all countries took much less than in April, and Germany in particular has stopped buying and has begun to accumulate stocks. North America took only 9,795 tons, as against 14,634 in April. The position in regard to hematite is considerably stronger than for ordinary pig iron. The tendency of demand for steel production is to increase, and improving prices must be possible shortly. The price for East Coast hematite mixed numbers is 66s ($16.16) per ton, which secures very narrow profits at the present price of ore.

Finished Material.—Some consolation for the poor pig iron exports in the north of England is found in the improvement with regard to manufactured iron and steel The total exports were 60,545 tons from Middlesbrough, an increase of 33 per cent on May of last year. Finished goods represented 41 per cent of the total exports, the best proportion for some years. This is a change in the right direction from the British point of view. The general steel trade continues to give satisfaction, although it is agreed that there is no certainty about it. In the Birmingham district the most disturbing factor is an influx of Belgian bars, at prices quite out of the question for British makers. In the case of wire products the profit margin has almost disappeared, but it is hoped that as there is not much foreign competition, an advance may be possible.

Structural engineers complain of lack of work and unprofitable prices. The galvanized sheet trade also appears to be under a cloud so that it has been found impossible to maintain even the £11 5s recently quoted. Sheets can now be bought at £11, and even for £10 17s 6d. The local opinion is that although the mills are busy on finished steel the tone is hardly so strong and any new business will be at slightly lower rates.

In the tin plate trade, the works are behind in their deliveries and are consequently very well able to keep up prices. Some of them, in fact, decline to quote. The trade generally has excellent prospects.

METAL MARKETS.

NEW YORK.

June 14.

Copper.—Under the influence of the unfavorable May statistics compiled by the Copper Producers' Association, the course of prices in the market throughout the week has continuously favored the consumer. There has also been foreign selling pressure. The latter is said to be due, indirectly, to the large increase of 18,441,814 pounds in the domestic surplus, which is now 160,425,973 pounds, and directly to the forced liquidation of French loans on approximately 30,000 tons of copper warrants. The large interests have not lowered their quotation of 13c for electrolytic to meet the outside market of 12.62½c, and stoutly maintain that they will not be forced to do so, as the independent surplus is insufficient to meet the requirements of consumption. There is a rumor in the trade, however, that these interests are considering a bid that originated in Europe for a large amount of metal at a very much lower figure. Electrolytic sold at 12.37½c, f. o. b. New York, for foreign shipment. This is equivalent to about 12.62½c, delivered, 30 days. The price of lake and casting is nominal at 12.75c-12.87½c for lake and casting at 12.50c-12.62½c. Exports since June 1 are 6,625 tons, and imports approximately 6,000 tons.

Tin.—Buying of spot pig tin by a local trading interest apparently to cover contracts for shipment to consumers approaching maturity, has been a feature of an active tin market this week. The activity, however, has

been at the expense of prices and the market shows a decline of 20 to 25 points from last week's closes. Spot and June tin can be had at 32.80c in New York; July and August at 32.70c. Arrivals since June 1 are 2,615 tons, and there is afloat 1,360 tons.

Lead.—There was evidence of improvement in the demand for pig lead at the beginning of the week, but it proved to be of a special nature and the market is again featureless, with prices steady. The outside quotation is 4.30c-4.40c in New York, and the American Smelting & Refining Co. is still quoting 4.40c firm.

Spelter.—The leading producers are supporting the price of the metal to the extent of not pressing sales at the present level. The market, however, has favored the buyer of small lots. Prime western spelter can be had in light volume at from 5.10c to 5.20c, in New York. Due to light stocks carried here, spot demands have sold relatively higher at 5.40c.

ST. LOUIS.

June 13.

Lead and Zinc.—Choice lots of zinc blende brought $44 in the Missouri-Kansas-Oklahoma district last week, with 60 per cent grades selling for $41. The average price for blende was $40.20 a ton, compared with $41.07 a ton the week before. Calamine sold for $23, 40 per cent qualities, with choice lots bringing $28 a ton. The average price for calamine was $23.84, compared with $23.40 of the previous week.

Lead brought a flat price of $49 a ton. The average price for lead was $48.75 a ton, compared to $48.61 of the week before.

Buying of ore was not active at any time during the week, and did not open well until Thursday. The buying of ore at the close of the week showed some increase. One bin is reported to have brought $42.50 basis, Saturday. A rising market is looked for this week. Quite a number of shallow ground mines closed temporarily because of the heavy rains.

Spelter was quoted at 5c to 5.05c at St. Louis, Saturday, compared with 5.10c for the week before. Pig lead at St. Louis was unchanged. When the week closed the price was 4.22½c.

CHICAGO.

June 14.

New Metals.—Copper is a shade easier this week, on very light local support, as well as in sympathy with the eastern market. Lead shows some strength, or at least, steadiness, being somewhat of an exception in that respect. Spelter continues neglected and weak. We quote as follows:

Lake copper, carload lots	13c to 13⅛c
Casting copper	12¾c
Smaller lots, ¼c to ⅜c higher.	
Spelter, car lots	5.10c to 5.15c
Lead desilverized (in 50-ton lots)	4.20c to 4.25c
Lead, corroding	4.45c to 4.50c
Sheet zinc, $7.50 list f. o. b. LaSalle in carload lots of 600-pound casks.	
Pig tin	33¾c
Cookson's antimony	10½c
Antimony, other grades	9¾c to 10¼c

Old Metals.—There is very little business moving in scrap metals, the brass foundries being especially backward in their interest in the market. Copper and brass scrap show a tendency to shade prices.

We quote dealers' selling prices as follows:

(Dealers' Selling Prices.)

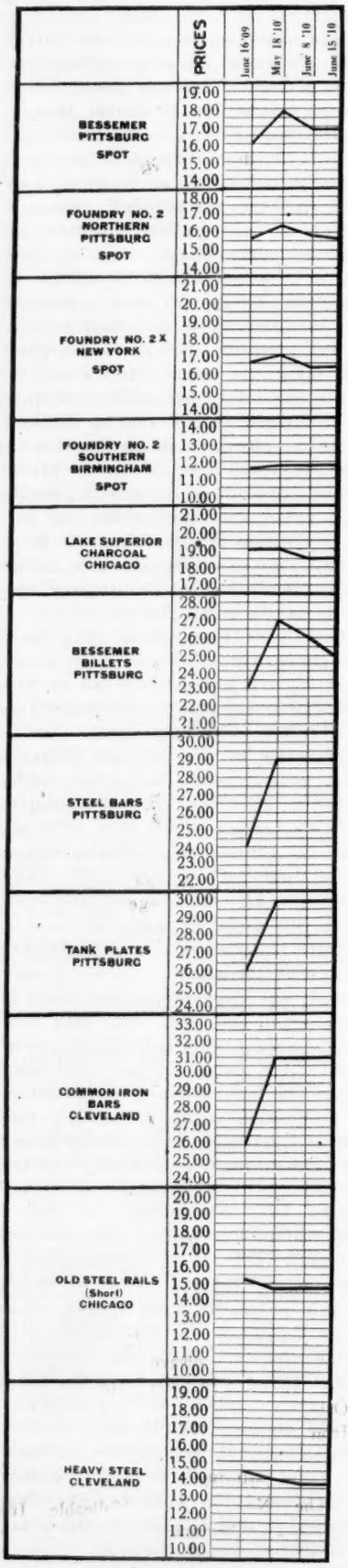
Copper wire	12¼c
Heavy copper	12¼c
Light copper	10¼c
Heavy red brass	11c
Heavy yellow brass	9c
Light brass	6½c
No. 1 red brass borings	9¼c
No. 1 yellow brass borings	7¼c
Brass clippinngs	8¼c
Tea lead	3.60c
Lead scrap	3.85c
Zinc	3¾c
Tin pipe	30c
Tin foil	27½c
Pewter	22c
Electrotype plates, free from wood	4¼c
Electrotype dross	3c
Stereotype plates	4½c
Stereotype dross	3¼c
Prime slab zinc dross, per ton	$75.00

PITTSBURG TRAFFIC CLUB.

At the annual outing and business meeting of the Traffic Club of Pittsburg, held at the Pittsburg Country Club, June 13, the following officers were elected: President, O. M. Ellsworth, general agent of the Rock Island; first vice president, E. C. Sattley, general manager of the Page Woven Wire Fence Co.; second vice president, D. L. Wells, general agent of the Erie; secretary, T. J. Walters, division freight agent of the Baltimore & Ohio railroad; treasurer, W. B. V. Taffner, general agent of the Chicago, Burlington & Quincy; board of governors—F. A. Ogden, of the Jones & Laughlin Steel Co.; L. K. Kornbornn, of the American Steel & Wire Co., representing the industrials, and George M. Kridler, general agent of the Big Four; W. S. Campbell, assistant division freight agent of the "Soo" line, and D. S. Roberts, agent for the Kansas City Southern railroad.

Not Confirmed.—The published report that the United States Steel Corporation has awarded contracts for eight additional furnaces for the Gary, Ind., plant of the Indiana Steel Co. is not confirmed in official sources.

PRICE CHART



DEATH OF FREDERICK W. SIVYER.

Frederick W. Sivyer, president of the Northwestern Malleable Iron Co., vice-president of the Chain Belt Co., and one of Milwaukee's prominent business men, died Saturday afternoon, June 11, at his home.

Mr. Sivyer has been ill for several weeks and death had been expected for several days. Death was due directly to complications arising from injuries sustained in a fall from a horse at Hot Springs, Ark., where Mr. Sivyer had gone for his health.

Frederick W. Sivyer, one of the best known iron manufacturers of the middle west, was born in Milwaukee, June 18, 1848, lacking only a few days of being 62 years of age at the time of his death. He received his early education in the local public schools, although he was forced to abandon his school at the age of 14. From that time, he practically earned his own living and secured his own education.

Mr. Sivyer's business career began when he went to work as an assistant in a little candy and fruit store, owned by John Hope, where he earned the wage of $1.50 a week. After working at this pursuit for more than a year, he abandoned it to enter the employ of Candee, Anbler & Co., of Milwaukee, where he remained from 1863 to 1867.

During these years the future iron manufacturer had not been wasting his time, but had been turning his leisure moments toward self-improvement. He had entered the Bryant, Stratton & Spencer business college and so when he left the brokerage firm he entered the dry goods store of James Bonnell to become an entry clerk.

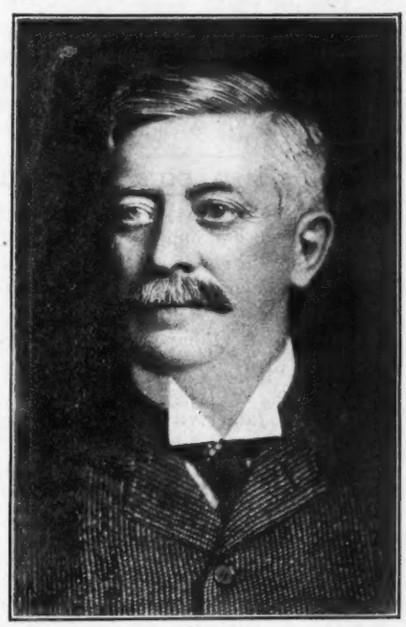
Mr. Sivyer's first connection with the foundry business came in 1873 when he entered the shops of the Minerva Furnace Co., where he learned the iron business from the bottom up.

In 1875 he launched into the malleable iron business under the firm name of Harris & Sivyer. The plant at West Water and Cedar streets prospered, and finally, was moved to a better location on Lincoln avenue. Ill luck followed the struggling young firm, however, and scarcely had the change in location been made when the plant was totally destroyed by fire. It was re-established, however, and the entire business was transferred to William H. Osborne of the Wisconsin Malleable Iron Works. Mr. Sivyer associated himself with this concern, where he remained until 1882.

The Northwestern Malleable Iron Co. had its beginning on July 27, 1882, when Mr. Sivyer organized Elmore, Sivyer & Co., to engage in the malleable iron business. On Sept. 15, 1888, the organization was incorporated as the Northwestern Malleable Iron Co. Mr. Elmore soon disposed of his interests to Helmuth Wells. The company prospered from the very start and today is the largest individual plant of its kind in the country.

Mr. Sivyer, almost unaided, introduced industrial education at Milwaukee and was instrumental in the organization of the Milwaukee School of Trades, which has since gained a national reputation. Until a few months ago Mr. Sivyer was a leading member of the board which controlled this school.

Mr. Sivyer, while one of Milwaukee's most public spirited business men, did not actively engage in politics, and only once was elected to public office. That was in the years 1895-96-97, when he was a member of the Milwaukee school board. He was a prominent member of the Merchants and Manufacturers' Association, an organization which he at one time faithfully served as president.



FREDERICK W. SIVYER.

Mr. Sivyer is survived by his wife and one sister, Mrs. Oscar B. Frye. His surviving son, Frederick L. Sivyer, is vice-president of the Northwestern Malleable Iron Co. The other son, Albert, was drowned in 1903 at Nantucket bay. In memory of this son, Mr. Sivyer built the Albert Memorial hall at Milwaukee-Downer college.

Sales agents of the Cambria Steel Co. held their annual meeting at Johnstown, Pa., last week.

CONTEST FOR CONTROL HAS BEARING ON ORE.

Some bearing upon the continuation of the Wabana, Newfoundland, ore deposits as a source of supply to blast furnaces in the eastern part of the United States is involved in a contest now being waged by the opposing factions for control of the management of the Nova Scotia Iron & Steel Co. The Forget interests, representing Montreal capital, are now attempting to recruit the majority of the outstanding stock against the policies at present being pursued by the company.

In the event that the Forget party is successful, it is understood that the iron ore deposits of the Nova Scotia Iron & Steel Co. will be conserved strictly for the company's own purposes. At the present time, the Canadian government allows a bounty upon all pig iron and steel manufactured by the home companies. This bounty is larger when Canadian ores are employed.

During the past year, from 300,000 to 400,000 tons of the Wabana ore of the Nova Scotia Iron & Steel Co. was sold to eastern furnace interests in the United States at the price of approximately 7½ cents per unit, Philadelphia. These engagements of ore are being delivered at the present time.

SALE OF BESSEMER ON SLIDING SCALE.

Pittsburg, June 15. (By wire.)

A valley consumer has closed a deal with a valley interest for 10,000 tons of Bessemer pig iron, delivery to extend over the third quarter. The deal was closed on a sliding scale basis. Several new inquiries developed today and consumers generally are taking more interest in the market. Negotiations are still pending for one or two fairly large deals.

NEW QUARTERS FOR METAL EXCHANGE.

The New York metal exchange has sold the exchange building, at Pearl street and Burling slip, and leased quarters in Trinity building, 111 Broadway, for a period of ten years. The board of managers has approved the deal.

Foundry employes of the Davies & Thomas Co., Catasauqua, Pa., have been granted a 10 per cent wage increase.

HAMILTON MERGER

Given a Name—Plans for Building Wire Making Plants.

Toronto, June 13.

The Hamilton steel merger has scored a point over its eastern rivals in the contest over the right to the name "Canadian." A charter has been granted by the state department under the name "Canada Steel Corporation, Ltd." The capitalization, as previously announced, is $25,000,000, of which $10,000,000 is to be preferred stock. The incorporators are C. F Wilcox, Cyrus A. Birge and Robert Hobson, of Hamilton; Lloyd Harris, M. P., of Brantford, and H. S. Holt, of Montreal. Hon. A. K. McLean, attorney general of Nova Scotia, protested against giving this name to the western merger, but the Canadian government's policy has been to refuse to recognize charters granted by the provincial governments in which the name "Canadian" or "Dominion" is used. It is considered probable that further complications will result.

J. H. Plummer, president of the Dominion Steel & Coal Corporation, yesterday announced that a subsidiary company had been organized to erect plants for the manufacture of wire, wire nails and other finished wire products. The company's policy had hitherto been, he said, to manufacture rods for the supply of wire and nail mills, but the merger of the larger wire and nail mills had forced the corporation into this move to protect its interests. The location of the mills has not been settled. While a location at Sydney, N. S., would be advantageous as regards cheapness of production, it is felt that Fort William is a more favorable distribution point.

The annual report of the Dominion Iron & Steel Co. for the year ending May 31 shows net earnings of $2,735,591, and net profits $1,607,960. The company paid $1,983,333 in dividends, and carries forward $2,058,225 to the credit of profit and loss. From the net profit is taken the current year's preferred dividend of 7 per cent, leaving $1,257,960 available on $20,000,000 common stock outstanding, which is equal to 6.28 per cent earned on the stock. The total amount received for damages in settlement of the litigation with the Dominion Coal Co. was $3,550,000.

At the annual meetings of Indiana Steel Co., the Gary Land Co. and the Gary Heat, Light & Water Co., all subsidiary companies of the United States Steel Corporation, held in Gary, the following officers were elected: E. J. Buffington, president; G. G. Thorpe, vice president; T. J. Hyman, secretary and treasurer. These three, together with K. K. Knapp and R. W. Campbell, were elected directors of the three companies.

STOVE MAKERS MAY COMPROMISE CRATING ORDER.

Louisville stove foundrymen regard it likely that railroads which have promulgated a regulation requiring stoves to be crated will compromise the point, which was discussed at the recent meeting of the Southern Stove Manufacturers' Association. The manufacturers took up the matter of blacking, and decided that all stoves should be sold hereafter unblacked. Nashville was selected as the next place of meeting by the association. Charles Huntington, of the Wetter Mfg. Co., Memphis, was elected president and White White, of Memphis, secretary.

SIMONDS MFG. CO.'S BUILDING.

Specifications have been submitted for the steel building 350 x 450 feet, which the Simonds Mfg. Co. will build at Lockport, N. Y. Contracts will soon be let for an office building.

Esenwein & Johnson, Buffalo, are preparing plans for an eight-story fireproof hotel to replace the Sherman House at Jamestown, destroyed by fire. The new building will have 120 feet front and the cost is estimated at $325,000.

WILL NOT REMOVE.

The official statement is made that the Bettendorf Axle Co. has no intention of removing its plant from Bettendorf, Ia., near Davenport, to Schenectady, N. Y., nor of building a branch plant at the latter city. The company's officials declare they are well satisfied with the present location.

The Texas railroad commission has now approved an iron ore carrying rate of $1.34 per ton, car load lots, with a minimum weight of 50,000 pounds, from Jefferson to Texas City and Galveston. Recently the commission had allowed a rate of $1.50 for the same movement, the new rate being a reduction.

Newark, N. J., molders have accepted a compromise offered by employers, which raises the pay of core makers from $3 to $3.25 per day, and of molders getting $3.25 to $3.50 a day. The agreement will run for one year.

HEAVY ORE RECEIPTS

At Lake Erie Ports Cause Considerable Congestion.

Receipts of ore at Lake Erie ports are very heavy, many vessels having to wait outside. It will be a day or two before the fleet now at Lake Erie docks will be worked out. Meanwhile carriers are going up light, owing to the scarcity of coal and will doubtless congest things at upper lake docks when they get there. Considerable coal is going by rail to Illinois, owing to the strike of the miners, which naturally subtracts from the supply to Lake Erie docks.

Receipts of ore at Lake Michigan ports during May were as follows:

South Chicago, Ill.	726,509
Gary, Ind.	219,843
Indiana Harbor, Ind.	65,887
Fruitport, Mich.	9,656
Milwaukee, Wis.	.....
Elk Rapids, Mich.	13,674
Boyne City, Mich.	13,775
East Jordan, Mich.	1,572
	1,050,916

PROPOSED SHIP BUILDING PLANT.

Vickers, Sons & Maxim, of England, have filed plans with the public works department at Ottawa for a ship building and ship repair plant to be located at Montreal, which will cost $2,500,000. The plant will be built on some 50 acres of ground beyond the present shore line between Longue Point and Molson's creek, to be filled up. The dry dock will be 650 feet long by 135 feet wide, and able to lift a vessel weighing 27,500 tons. It will be located in a basin 1,000 feet long, 500 feet wide and 50 feet deep. At the rear of the basin will be three construction and repair berths, each 500 by 60 feet. The company asks for a subsidy under the act of last session of 3½ per cent annually for 25 years on $2,500,000.

DEMANDS DAMAGES FROM CITY.

The American Car & Foundry Co. has brought suit for $30,000 against the city of Indianapolis and a local contractor for damage to buildings, patterns, etc., sustained in a fire June 9, last year. While digging a sewer near the company's plant, it is alleged that the contractor used an engine provided with an imperfect spark arrester, the sparks setting fire to the company's property.

Ella furnace, of Pickands, Mather & Co., at West Middlesex, Pa., was blown out, June 13.

BATH TUB MERGER

Is Strongly Denied by President Ahrens of Standard Sanitary.

Louisville, June 13.

Theodore Ahrens, president of the Standard Sanitary Mfg. Co., was asked to make a statement regarding the report that a combination of interests is contemplated by manufacturers of bath tubs and other plumbing supplies, and said:

The report is absolutely untrue. There is nothing in it, and not only is no consolidation being considered, but it has not even been discussed. I suppose that the report originated from the fact that resale prices to jobbers and plumbers adopted by the manufacturers of enameled ironware who are producing under certain patented processes went into effect this week. This was the result of an agreement with the holders of the patents, and was not the outcome of any concerted move on the part of the manufacturers.

Regarding business conditions, Mr. Ahrens said that the situation is rather quiet, but could be much worse. The plants of the Standard Sanitary Mfg. Co., he said, are running about two-thirds of their capacity. Prospects are not marked in either direction, but the indications are that 1910 will be an average year.

ORGANIZES ENGINEERING COMPANY.

C. A. Tupper, manager of the publicity department for The Allis-Chalmers Co., Milwaukee, Wis., announces that together with L. V. Tupper he has organized The Reliance Engineering & Equipment Co., and in the near future will retire to give his entire attention to the management of the new company. Offices have been established at 1417-1419 Majestic building, Milwaukee, with branches at 101 Milk street, Boston, and 604 Mission street, San Francisco. It is the intention of the new concern to do a general engineering and contracting business in the line of electrical and mechanical equipment.

WILL MAKE BALATA BELTING.

Charles E. Aaron and John R. Stein, president and treasurer respectively of the New York Leather Belting Co., have formed a combination with three members of the firm of C. Vollrath & Sohn, Blankenburgh, Germany, to establish a plant at Easton, Pa., to cost about $500,000, for the manufacture of Balata belting, a product which is sold in this country to the extent of about $1,000,000 a year, but which at present is entirely imported. The plant will occupy a nine-acre site and will consist of two buildings, one 150 x 100 feet, and the other 75 x 60 feet. All the machinery is being made abroad. Ultimately a plant for weaving cotton duck, the basis of Balata belting, will be added. It is believed that the new plant will extend the use of this kind of belting in this country and reduce its price. The process by which the belting is made is a trade secret and will be kept so in the new plant.

RECORD BREAKING IN PUEBLO.

Pueblo, Colo., June 15. (By wire.)

All records were broken at the open-hearth department of the Colorado Fuel & Iron Co. during the month of May, when 40,000 tons of rail steel were produced. The superintendent is R. W. Anderson, formerly of South Works of the Illinois Steel Co., Chicago & Lackawanna Steel Co., and assistant, M. R. Schwer, of the plant.

ELEVATOR STRIKE ENDED.

Striking employes of the Otis Elevator Co., at Yonkers, N. Y., have returned to work, none of their demands being granted. The company has agreed, however, to receive a committee of employes to talk over all differences, which, it is believed, will lead to adjustment.

ST. LOUIS SHIPMENTS.

Receipts and shipments of pig lead and spelter at St. Louis for the last two weeks were as follows:

	Zinc and spelter.	Pigs of lead.
Receipts—		
For week ending June 4...	81,960	36.620
For week ending June 11....	74,400	23,810
Shipments—		
For week ending June 4.....	83,540	19,880
For week ending June 11....	83,210	29,000

WILL BUILD WIRE MILLS.

President J. H. Plummer, of the Dominion Iron & Steel Co., has announced that interests connected with that company will erect plants at various Canadian points for the manufacture of wire and wire products.

NEW YORK COPPER EXPORTS.

Copper exports for the week ending June 9 were 3,356 tons, a decrease of 5,705 tons; for the month to June 9, 3,843 tons, a decrease of 8,049 tons; from January to June 9, 108,670 tons, a decrease of 16,888 tons.

The Crescent Forge & Shovel Co., Havana, Ill., asks for information regarding firms manufacturing machinery for recovering emery from grinding room sweepings and refuse.

BUSINESS CONDITIONS

Satisfactory to Judge Gary—Volume of Trade Increases.

Judge E. H. Gary, of the United States Steel Corporation; Franklin MacVeagh, secretary of the treasury; E. J. Buffington, president of the Illinois Steel Co.; A. F. Banks, president of the Elgin, Joliet & Eastern R. R., and E. D. Thorpe, president of the Indiana Steel Co., inspected the works of the Indiana Steel Co. at Gary, Thursday.

While in Chicago, Judge Gary gave out a brief interview dealing with the recent conference between the railroad interests and the president. He said:

Business conditions on the whole should be considered satisfactory. The volume is not so large as it was during the latter part of 1909, though it has been increasing slowly during the last 30 days.

For perfect conditions one thing is lacking, namely, a feeling of certainty as to what will or what may happen in the near future. This is what has been indefinitely described as 'something hanging over us.' It results from a failure on the part of many individuals to comprehend what the president or other government officials, or congress, intend to do, or a similar feeling on the part of the latter, or some of them, toward the former.

There has not always been a disposition to conciliate and co-operate. Therefore, capital, always sensitive, has not been freely interested, but has been more or less withheld awaiting developments. However, the disposition shown and the action taken recently by the president and leading railroad officials should have a great influence in improving the sentiment of the people generally.

The settlement or partial settlement of the questions involved in the discussion at the late conference in Washington by personal and friendly contact is perhaps one of the most important and beneficial features of the present administration. It is to be hoped that this is the beginning of a course which will be generally adopted. The larger percentage of all controversies can be settled amicably and trouble avoided if a proper spirit of conciliation is shown.

PETROLEUM WORKS CHANGES.

Secretary and Treasurer A. W. Krause, General Manager Charles A. Lytle, E. G. Wright and H. L. Stafford, of Pittsburg, have disposed of their holdings in the Petroleum Iron Works Co., at Petroleum, near Sharon, Pa., to Joseph P. Sweeney, of Sisterville, W. Va., for the majority stock holders. Mr. Krause has resigned as secretary and treasurer, and Mr. Sweeney will fill the offices, beginning July 1.

PERSONAL.

Eugene Littell, formerly with the Spring Perch Co., has joined the Higgins Spring & Axle Co., Racine, Wis.

H. H. Westinghouse has been elected president of Westinghouse, Church, Kerr & Co., New York, general engineers, to succeed the late W. C. Kerr.

John H. Patterson, president of the National Cash Register Co., Dayton, O., has returned from an absence of two years inspecting the foreign branches of the company.

W. O. Duntley, president of the Chicago Pneumatic Tool Co., has left for a tour of Europe, and will attend the international railroad congress, in Switzerland, returning to Chicago about Aug. 2.

Louis C. McKinney, who, for the past eight years has been superintendent of the South Penn Oil Co., has resigned, having been elected president of the Titusville Iron Co., Titusville, Pa. His resignation as superintendent becomes effective July 1.

S. H. Standish, formerly with the Finished Castings Co., of Philadelphia, Pa., has been elected secretary-treasurer of the Racine Steel Castings Co., Racine, Wis., to take the place of J. H. Dwight, who has become secretary of the Racine-Kelly Rubber Co.

William Martin, known as the father of the iron industry of the Pacific, late United States consul general of Hankow, China, has arrived in Seattle as the representative of the Hankow iron interests, which recently made a contract with the Western Steel Corporation for iron ore for the steel plant at Irondale, Wash.

Lucius I. Wightman, for the past six years advertising manager for the Ingersoll-Rand Co., 11 Broadway, New York, has resigned, effective Aug. 1. He will open an office in New York City as independent specialist in machinery advertising, handling the accounts of manufacturers of machinery and engineering products.

OBITUARY.

Anton Hennigin, aged 77, a well-known contractor and builder of glass furnaces, died June 11, at his home, Southside, Pittsburg.

Charles A. Glaser, secretary and treasurer of the Garland Nut & Rivet Co., and assistant treasurer of the Garland Corporation, died June 12, at the home of his father-in-law, W. V. Depuey, Munhall, Pa.

Elisha P. Wilbur Sr., a heavy stockholder in the Bethlehem Iron Co., president of the Coplay Iron Co., director of the Northampton Iron Co., and president and director of numerous coal and coke companies, died at his summer home, Alexander Bay, Thousand Island, N. Y., June 14, aged 77 years. At one time, he was president of the Lehigh Valley railroad.

Daniel Eagan, former president of the American Steel Foundries, died June 9, at his home in Philadelphia. He organized and was the first president of the American Steel Casting Co., which controlled several casting plants in eastern Pennsylvania. When the American Steel Foundries was organized in 1902, Mr. Eagan was the first president. He retired from the office Oct. 5, 1905, upon the election of William V. Kelley

Walter S. Mendenhall, vice president of the Samuel Tatum Machine & Foundry Co., died June 11 in Cincinnati, aged 55 years. After being educated for the law and practicing his profession for several years at Richmond, Ind., he entered business in Cincinnati, devoting his inventive skill to mechanics and producing a number of successful machinery inventions. He secured several hundred American patents after his original invention of punches for paper and metals had attracted the attention of manufacturers. He designed the building and machinery of the Tatum company, which concern produced the devices which he invented.

Ignatius Droege, for a number of years president of the Licking Iron Works, Covington, Ky., died June 5 at his home in Covington, aged 82. Mr. Droege came to Covington in 1848 from Westphalen, Germany, finding employment as a blacksmith in the Licking mill, which was then operated by Bush & Jordan, and later by Phillips & Jordan. Leaving the mill, he formed a partnership with Charles Bogenshutz, conducting what is known as the Droege & Bogenshutz Stove & Foundry Co. for a number of years. When the Licking mill closed down, Mr. Droege purchased it, and with his sons operated it successfully. Several years ago he retired from the company, leaving the plant in the hands of his sons, J. C. Droege as president, and F. J. Droege vice president. The company is now known as the Licking Coal & Iron Co., Inc.

William P. Bettendorf, president and general manager of the Bettendorf Axle Co., died June 3 after an operation at his home in Bettendorf, near Davenport, Ia. Mr. Bettendorf was born in Mendota, Ill., July 1, 1857. His early life was spent in the states of Missouri, Kansas and Iowa. In 1852, he became a clerk in a hardware store in Peru, Ill., and later entered the machine shop of the Peru Plow Co. as an apprentice, becoming an expert workman. He left the employ of the Peru Plow Co., for that of the Moline Plow Co., Moline, Ill., later becoming foreman of the fitting department of the Parlin & Orendorff Co., Canton. In 1878, while with the Parlin & Orendorff Co., he invented the power lift sulky plow. In 1882, he reentered the employ of the Peru company as its superintendent. He then invented the Bettendorf metal wheel for wagons and farm machinery, also inventing machinery for manufacturing the wheel. He remained with the Peru company until 1886, when with his brother, J. W. Bettendorf, he established at Davenport, a plant for manufacturing metal wheels for the Eagle Mfg. Co. Three years later, the Bettendorfs organized and incorporated the Bettendorf Metal Wheel Co., and on Jan. 1, 1895, the Bettendorf Axle Co. was organized and incorporated. The manufacture of steel car trucks and steel underframes was begun after the invention of a steel gear, and has steadily developed until today complete steel railway cars are manufactured at the Bettendorf plant. The original plant was located at Davenport, Ia., but after two disastrous fires in 1902, it was decided to rebuild the plant where it would expand, and the site since called Bettendorf after the manufacturer, was selected. Mr. Bettendorf was regarded as a business man of high rank, as well as an inventor of marked ability.

INDEPENDENTS ARE IN SESSION.

Pittsburg, June 15. (By wire.)

The independent sheet and tin plate makers who will hold their annual wage scale conference in Pittsburg, tomorrow, with the Amalgamated Association of Sheet and Tin Plate Workers, are holding a preliminary meeting at the Hotel Lincoln, Pittsburg, today. Conflicting reports are being circulated as to what action will be taken by the independents, but no official statement has been issued.

WILL PROCEED WITH PLANT AT DULUTH.

New York, June 15. (By wire.)

A committee of officials and engineers of the United States Steel Corporation has recently visited Duluth and has presented a report to the finance committee, which has been approved. It is the intention to proceed with the construction of the steel plant at that point with all reasonable dispatch.

Furnace B, of Federal Furnace Co., South Chicago, blows out this week for necessary repairs.

Rate Compromise Helps Market

The leading factors affecting last week's stock market were the compromise effected between the administration and the railroads on the rate question, and the report of the Copper Producers' association, showing large increases in stocks.

Monday the market opened weak and lower, continuing the declines of the week before, but closed with a sharp recovery on account of the announcement from Washington that the railroads would withdraw their advanced freight schedules pending the passage of the railroad bill. Tuesday, the recovery of prices continued. The market closed firm, with advances ranging from 2 to 4 per cent. The railroad bill was sent to the conference committee, and President Taft sent a special message on the subject of railway rates. Grain and cotton markets were firmer, and the government crop report showed slightly less favorable conditions. Wednesday the market was active and irregular. The Copper Producers' report showed a heavy increase in production, and a decline in domestic deliveries. A receiver was appointed for the Denver Reservoir and Irrigation Co., a $12,000,000 corporation. Thursday, the market was dull, and after some weakness recovered and closed firm. The Bank of England discount rate was reduced from 3½ to 3 per cent. Friday, the weakness of the copper stocks affected the general market, which closed lower. Railroad stocks were lower and weaker. Saturday, copper shares were somewhat higher, but Steel, Union Pacific and Reading were both lower. There was a sharp break in wheat in the Chicago market.

Money on call throughout the week was easy, rates ranging from 3 to 2 per cent, closing Saturday nominally at 2½ per cent. Time money was easier, and the demand light. Clearings throughout the United States were estimated at $3,291,670,390, against $3,052,748,819 the week before, and $3,493,989,947 the corresponding week of 1909. The actual report of clearing house banks showed loans decreased $1,041,700; deposits increased $1,150,500; surplus increased $3,393,875, and the ratio of reserve, 27.1, against 26.9 the week before. Trust companies and non-member banks showed loans and investments decreased $9,977,100; total deposits decreased $117,000, and the percentage of reserve 17.2, against 17.1 the week before. Exports of gold as reported by the custom house were $55,745, and imports were $64,818. Immigrant arrivals at New York numbered 26,138, against 28,796 the week before. Departures number 10,055, against 2,370 the week before. Failures in the United States numbered 240, against 152 the week before, and 254 the corresponding week of the year before. Liabilities in failures for June to June 11 are $2,049,590, against $4,512,448 for the same period last year. The number of shares traded in on the New York exchange during the week was 4,041,600 against 4,953,000 the week before, and 5,238,741 the corresponding week of the year before. Bonds other than government bonds, were dealt in to the value of $10,076,000, against $11,304,000 the week before and $34,615,000 the corresponding week of 1909.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo- June11	Changes in week	Annual Mortgage Date 1910	Stock Outstanding	Basis	Dividend Last Dividend	Date Last Div. Pay.
Allis-Chalmers	9	+ ½		$19,820,000			
Allis-Chalmers, pr.	30	—1¾		16,150,000	7 cum.	1¾ Q.	Feb., 1904
American Can	9⅛	+ ⅛	Feb. 2	41,233,300		1¼ Q.	
American Can, pr.	70¾	+ ¼		41,233,300	7 cum	1¾ Q.	Apr., 1910
Am. Car & Fdy.	53¾	.....	June 24	30,000,000		½ Q.	Apr., 1910
Am. Car & Fdy., pr.	115	+1½		30,000,000	7 n. c.	1¾ Q.	Apr., 1910
American Loc.	42	+ ½	Oct. 18	25,000,000	5	1¼ Q.	Aug., 1908
American Loc., pr.	104½	.....		25,000,000	7 cum.	1¾ Q.	Apr., 1910
American Ship	81	+1½	Oct. 12	7,600,000	4	1 Q.	Mar., 1910
American Ship, pr.	110¼	.....		7,900,000	7 cum.	1¾ Q.	Jan., 1910
Am. Steel Foundries(new)	53	+3½	Dec. 1	17,184,000		1¼ Q.	
Barney & Smith	30	.....	June 7	2,000,000	4	.....	Sept., 1907
Barney & Smith, pr.	100	.....		2.500,000	8 cum.	1 Q.	June, 1908
Bethlehem Steel	26	+1	April 5	14,862,000		.....	.....
Bethlehem Steel, pr.	53	.....		14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	45	.....	Mar. 15	45,000,000	5	1¼ Q.	May, 1910
Cambria Iron	44½	— ½		8,468,000*	4	2 S. A.	Apr., 1910
Chicago Pneumatic Tool	39½	+1	Feb. 21	6,145,000	4	1 Q.	Apr., 1910
Colorado Fuel	34	+ ½	Oct. 17	34,235,500		1¾ Q.	April, 1902
Crucible Steel	123¾	+ ¼	Oct. 19	24,578,400		3½.	.....
Crucible Steel, pr.	87⅛	+4⅛		24,436,000	7 cum.	1¾ Q.	Mar., 1910
Empire Steel	10	+1½	Feb. 23	1,254 770		.....	.....
Empire Steel, pr.	65	—3		2,500,000	6 cum.	3 S. A.	July, 1909
Fay & Egan	70	.....	Feb. 15	1,000,000	7	3 S. A.	Feb., 1910
Fay & Egan, pr.	115	.....		1,000,000	7 cum.	1¾ Q.	Nov., 1909
General Electric	143½	+2½	May 10	65,179,600	8	2 Q.	July, 1910
Harbison-Walker	33	— ¾	Jan. 17	18,000,000		½ Q.	June, 1910
Harbison-Walker, pr.	94	.....		9,600,000	6 cum.	1½.	Apr., 1910
International Pump	46	+1	May 10	17,762,500		1 Q.	Apr., 1905
International Pump, pr.	82⅜	+ ⅞		11,350,000	6 cum.	1½ Q.	May, 1910
Lackawanna Steel	45	.....	Mar. 9	34,978,000		.....	.....
Lake Sup. Corp.	22	+1	Oct. 5	40,000,000		.....	.....
New York Air Brake	62	+1	June 16	10,000,000	8	2 Q.	Oct., 1907
Niles-Bement-Pond	98	.....	Feb. 2	8,500,000	6	1½ Q.	May, 1910
Niles-Bement-Pond, pr.	104	.....		2.000,000	6 cum.	1½ Q.	May, 1910
Otis Elevator Co.	45	.....	Mar. 21	10,000,000	3	1½ S. A.	Oct., 1909
Otis Elevator Co., pr.	94	.....		6,500,000	6 n. c.	1½ Q.	Jan., 1910
Pa. Steel	65	.....	May 9	10,750,000		.....	.....
Pa. Steel, pr.	105	+2		16.500,000	7 n. c.	3½ S. A.	May, 1910
Pittsburg Coal Co.	18⅜	+ ⅜	Mar. 8	28,104,600		.....	.....
Pittsburg Coal Co., pr.	64½	+1½		27,071,800	7 cum.	1¾ Q.	Apr., 1910
Pressed Steel Car	34	+1¼	Feb. 16	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr.	95	.....		12,500,000	7 n. c.	1¾ Q.	May, 1910
Pullman	160	.....	Nov. 9	120,000,000	8	2 Q.	May, 1910
Railway Stl. Spring	35	+2½	Mar. 3	13,500,000	2	1 S. A.	Oct. 1908
Railway Stl. Spring, pr.	100	.....		13,500,000	7 cum.	1¾ Q.	June, 1910
Rep. Iron & Steel	30¼	+2⅜	Oct. 19	27,191,000		.....	.....
Rep. Iron & Steel, pr.	94¼	+ ¼		20,416,900	7 cum.	1¾ Q.	July, 1910
Sloss-Sheffield	68½	+ ½	Mar. 9	10,000,000	5	1¼ Q.	June, 1910
Sloss-Sheffield, pr.	117¾	— ½		6,700,000	7 n. c.	1¾ Q.	Apr., 1910
U. S. Pipe & Fdy. Co.	19	— ½	June 22	12,106,300	2	1 Q.	Dec., 1907
U. S. Pipe & Fdy. Co., pr.	69¼	+ ¼		12,106,300	7 n. c.	1¾ Q.	Mar., 1910
U. S. Steel	76¾	+1⅜	April 18	508 302,500	4 n. c.	1¾ ‡ Q.	Oct., 1909
U. S. Steel, pr.	115½	+ ¼		360,281,100	7 cum.	1¾ Q.	Oct., 1909
U. S. Steel, 5s	103	.....		463,798,000	5	.....	Jan., 1910
Va. Iron, Coal & Coke	58	.....	Sept. 20	9,073,680		.....	Mar., 1910
Westinghouse Elec.	59¾	+ ¼	July 27	27,173,200*		1¾ Q.	Mar., 1910
Westinghouse Air Brake	138	+2¼	Oct. 4	14,000,000*		5 Q.	Apr., 1910

Par value of shares $100, except those starred (*), $50.
‡Includes ¼ per cent extra.

Copper Stocks.

New York.—Amalgamated copper closed 62¾, a decrease of 1¼.

Boston. — Butte Coalition closed 18⅜, a gain of ⅜; Calumet & Arizona closed 57, a decrease of 4; Calumet & Hecla closed 560, a decrease of 10; North Butte Mining closed 27¾, a decrease of 2½; Quincy Mining 74¼, a decrease of ½.

Financial Notes.

The American Car & Foundry Co. has declared the regular quarterly dividends of 1¾ per cent on its preferred stock, and ½ of 1 per cent on its common stock, both payable July 1.

THE IRON TRADE REVIEW

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January, 1910	5.681
February	5,703
March	5,754
April	5,793

June 16, 1910

A TWELVEMONTH'S PIG IRON PRODUCTION.

Our monthly blast furnace reports have shown a production of 12,470,170 tons of coke and anthracite pig iron in the first five months of this year. There is no warrant for forecasting the June production at either more or less than the May rate, or for assuming that the production of charcoal pig iron in the present half year has varied from that of the second half of last year. The half year's production of pig iron may, therefore, be estimated as follows:

Coke and anthracite—	
January-May	12,470,170
June	2,298,210
Six months	14,768,380
Charcoal pig	204,614
Half year total	14,972,994

This exceeds by 200,000 tons the 14,773,125 tons made in the second half of last year, although that was the record for a half year by 1,300,000 tons. The total for the twelvemonth ending this month is approximately 29,750,000 tons. Owing to the sharp decrease in production in the two closing months of 1907, that year showed a total output much below the promise of the first 10 months, November and December experiencing a loss, from the October rate, of more than 1,500,000 tons. In view of these and other variations, it is interesting to compare outputs, not simply by calendar years, as is usually done, but also by twelvemonths ending June 30, and, using the above estimate, we have the following comparisons:

	Year ended June 30.	Year ended Dec. 31.
1905	19,486,770	22,992,380
1906	24,411,455	25,307,191
1907	26,202,985	25,781,361
1908	19,221,321	15,931,018
1909	20,040,360	25,795,471
1910	29,750,000	.....

We have here a gain from one June 30 year to the next from 20,040,360 tons to 29,750,000 tons, almost 50 per cent, but that is not as great a gain as was shown in the calendar years, for the increase from 15,931,018 tons to 25,795,471 tons was more than 60 per cent. The most spectacular increase shown by the table is this, that from the year ended Dec. 31, 1908, to the year ended June 30, 1910, *i. e.*, two twelvemonth periods with an interval of but six months between them, production rose from 15,931,018 tons to 29,750,000 tons, a gain of 86.7 per cent.

It was regarded as of no special significance that the output in the calendar year 1909 slightly exceeded that of 1907, because 1907 was not a year of sustained high pressure. The twelvemonth ended the middle of 1907, however, was such a period of sustained high pressure. It showed 26,202,985 tons, while the fiscal year ending this month, three years later, shows a gain of over 2,500,000 tons.

We are not through with the making of records for pig iron production in periods of 12 consecutive months, however, inasmuch as we are making pig iron at a much greater rate now than a year ago. Our monthly blast furnace returns have shown the following average daily rates for the production of coke and anthracite iron:

	1909.	1910.
January	57,683	83,871
February	60,088	86,747
March	58,793	83,508
April	57,687	82,590
May	60,218	76,607
June	64,334	.....
July	67,375	.....
August	72,021	.....
September	79,186	.....
October	84,001	.....
November	84,425	.....
December	86,539	.....

Observing that the daily rate last month was 76,607 tons, and the daily rate last year did not reach that amount until September, it is evident that, if we maintain the May rate of production, the output in the twelvemonth ending July 31 will exceed that of the output in the twelvemonth ending June 30, while the twelvemonth of August 31 will show a still larger tonnage. There would be a daily gain during July of 9,232 tons and during August of 4,586 tons, equal to 286,000 tons in July and 142,000 tons in August. Adding these gains to the 29,750,000 tons estimated for the twelvemonth ending June 30, we have just a little over 30,000,000 tons for the twelvemonth to end July 31, and a little over 30,100,000 tons for the twelvemonth to end August 31. It is likely, of course, that production will decline in midsummer, so that the interesting landmark of 30,000,000 tons in 12 consecutive months may not be reached at this time. Enough has been done, however, to show that this is a 30,000,000-ton country.

PROSPECTIVE IRON AND STEEL REQUIREMENTS.

It is important to observe that the relation of consumption to production of iron and steel has greatly improved since last winter. The current rate of production, as measured by pig iron output, is between 8 and 9 per cent less than the average rate from October to March inclusive. Considering that normally the consumption is much greater in summer than in winter, that last winter much material was being taken by jobbers and manufacturing consumers for stocking purposes, while even mills were accummulating stocks in some instances, and that purchases and deliveries have been restricted as much as possible of late, it is patent that, when production has declined so slightly, actual ultimate consumption must have increased very materially. A disposition is sometimes manifested to regard the condition of pig iron stocks at merchant furnaces as illustrative of the general iron and steel position as to stocks. There is no connection between the merchant furnace business and the steel trade. It is purely

an incident that one of the intermediate forms in the transformation of iron ore in the ground into finished steel products is pig iron, substantially the same material in general process of manufacture as is made by merchant furnaces for foundries. Foundry pig iron is made to be sold. The great bulk of steel making iron is produced by the consumers, and by far the major part of the iron thus produced never solidifies. Commercial conditions frequently lead to the accumulation of large stocks of foundry pig iron in the hands of producers or consumers, when there is no accumulation of steel making iron. That there are fairly large accumulations of pig iron at merchant furnaces is undoubtedly the case, but it is not shown that there has not been a corresponding diminution of stocks in the hands of foundries, and even if not, the accumulation of foundry pig iron does not prove anything as regards the accumulation of steel products.

There is definite promise of a large consumption of iron and steel in the future in several current developments. Foremost, perhaps, among these is the change in proportionate output as between the classes of material which are put into more or less permanent use and those which are put into a channel which causes them ultimately to disappear, or to return soon in a form which requires reworking by melting or otherwise. It is convenient to compare conditions in the three years, 1905-6-7, with the twelvemonth which is just ending. Actual production in the twelvemonth just ending has shown an increase of between 20 and 25 per cent, for in the former period the average production of pig iron was less than 25,000,000 tons a year, while in the twelvemonth just ending it has been close to 30,000,000 tons, and the greater part, if not all, of the increase has been in steel.

In the former period, a larger portion than lately of the total steel output went into permanent structures, such as bridges, viaducts and buildings. There was also heavy laying of rails, in the building of new track and in the replacement by standard sections of old and light sections which were unable to stand the heavier service imposed. The tonnages along these lines have decreased not merely relatively, but absolutely, so that if the total tonnage has increased between 20 and 25 per cent, the tonnage of other lines has increased still more in point of percentage.

There has been a very large increase in consumption of sheets and tin plates, and long experience has shown that these commodities are subject to less fluctuation, on account of general business conditions, than almost any other form of finished steel. The growth has been due merely to the finding of new uses and the expansion of old uses. Permanence to the increase is assured. The merchant mill tonnage has shown a very large increase, the increased demand coming from a wide variety of sources. There is the demand for agricultural implements, from a consuming trade of the most stable character. There has been a remarkable increase in the use of concrete reinforcement, a large increase in hoops and heavy bands, a heavy increase in the bedstead trade, and so on. Along these lines there is permanent progress.

A vastly larger percentage of the total steel consumption represents ordinary business activity, and not the investment of permanent capital, than was the case in the 1905-6-7 period. Indeed, any comparison of financial conditions leads plainly to the conclusion that a repetition of the demand of that period could not be expected at this time, if it depended upon the re-establishment of those financial conditions. We see, however, that the total consumption has greatly increased. The added consumption is of the best character, for it involves plain ordinary consumption.

We recurred last week to the fact that the railroad demand for iron and steel in 1906-7 did not represent more than about one-third the total, and noted that the proportion of late cannot have been more than one-fifth or one-fourth. This reduced demand is of the most substantial and permanent character. The railroads have done little by way of laying new track, and have had relatively little occasion to replace light rails with heavy rails, because that work is largely done, but they have been replacing rails because worn out, and that they must continue to do, probably at the rate of about one ton of rails to every 225,000 or 250,000 ton-miles of freight traffic. Apparently the impression sought to be conveyed by recent railroad propaganda is that the railroads do not buy new cars except by way of improvement, but such an impression would be quite erroneous. Since July 1, 1907, the Interstate Commerce Commission has required the railroads to set up certain uniform depreciation accounts, which amply cover the wear and tear of rolling stock, and, according to some railroad complaints made at the time, a good bit more. Money is being set aside in those funds, before the earnings, about which there is now so much talk, are reached. There are nearly 2,000,000 wooden freight cars in the country, and, as most of them are old, they are going very rapidly. The mere replacement of those wooden cars with steel cars promises a very comfortable tonnage in the next few years, and for that work the funds are being provided. If any railroad has not the funds to replace its cars which wear out, it has been violating the requirements. It is safe to say that the funds are there. It would appear, then, that a large part of the railroad buying which the trade has experienced in the past twelvemonth is assured for the future.

On the whole, it seems safe to assert that the character of present day consumption of iron and steel is such as to give more promise of permanence than has been the case at almost any time in the past, and certainly much more than in the case of the recent periods of high pressure.

Will Remove Offices.—The Lackawanna Steel Co. has decided to move its principal offices from New York City to its works at Lackawanna, near Buffalo, N. Y., as soon as the necessary additions to its present office building at Lackawanna, can be completed. Selling offices necessary for local business will be maintained at the present location, 2 Rector street, New York City. Formal notice of the date of removal will be given as soon as definitely decided.

The Iroquois Iron Co., in Chicago, has amended its articles of incorporation, increasing the number of its directors from eight to nine.

The Southwestern Iron & Steel Co., Gainesville, Tex., has filed a charter and changed its name to the Imperial Iron & Steel Co.

OUR FOREIGN COMMERCE.

Fiscal Year Exports Promise New Record—Ore Imports at New Record Rate.

Iron and steel exports in April amounted to 117,921 gross tons, somewhat less than in January or March, and somewhat more than in February. The April rate was better than has thus far been maintained throughout any calendar or fiscal year. Estimates for the current fiscal year made a month ago, based on the March returns, put the total of tonnage lines for the 12 months to the end of this month at about 1,400,000 tons. Should the slightly reduced rate for April be maintained in May and June, the total would be about 1,375,000 tons, and this would be about 50,000 tons better than has been done in any fiscal or calendar year.

The degree of finish of the April exports was exceptionally high. The total, at approximately 118,000 tons, compared with an average of 114,000 tons per month during the ten months ending with April, but billets, sheet bars, etc., dropped from an average of 5,000 tons a month, in the ten months, to 168 tons in April, and rails from an average of over 30,000 tons a month to less than 20,000 tons. On the other hand, more finished products showed some important gains, structural increasing from 8,000 to 15,000 tons, sheets and plates from 19,000 to 23,000 tons and plain and barb wire from 12,000 to 15,000 tons. Pig iron was an exception to this rule, for it amounted to 11,757 tons, against an average of 5,700 tons a month in the preceding nine months.

Crude Steel Exports Disappearing.

Our crude steel exports, once important, have dwindled to insignificant proportions of late. Exports by calendar years and by months this year have been as follows, in gross tons:

1902, 2,409; 1903, 5,445; 1904, 314,324; 1905, 237,738; 1906, 192,616; 1907, 79,991; 1908, 112,177; 1909, 104,862; January, 1910, 3,080; February, 1,596; March, 266; April, 168.

Rail Exports Heavy.

While rails and billets are more or less cognate products, rail exports have not decreased as billets, etc., have decreased. Rail exports have been as follows, in gross tons:

1902, 67,455; 1903, 30,656; 1904, 414,845; 1905, 295,023; 1906, 328,036; 1907, 338,906; 1908, 196,510; 1909, 299,540; January, 1910, 41,999; February, 34,486; March, 33,507; April, 19,732.

Thus in the six years, 1904-9, exports of billets, sheet bars, etc., averaged about 175,000 tons per year, but in the first four months of this year have averaged only 15,000 tons a year. In the six years, rail exports averaged 310,000 tons a year and in the first four months of this year were at the rate of 390,000 tons a year.

Value of All Exports.

The total value of all iron and steel exports in April was $16,529,254, this valuation including that of the tonnage lines, as well as of hardware, cutlery, machinery, etc., but not agricultural implements. This compared favorably with the average of the preceding three months. In the four months of the year, the value was at the rate of $185,000,000 a year, which is better than any calendar year in the history of the trade, barring only 1907, when the total value was $197,066,781. Prior to 1905, the total never reached $130,000,000.

Heavy Ore Imports.

Imports of iron ore in April amounted to 206,135 tons, precisely the average of the preceding three months, and making the total for four months 825,000 tons, or at the rate of 2,475,000 tons a year. Were this rate maintained, the year's total would far surpass any previous record, for 1909, with 1,696,411 tons, broke the previous record, made back in 1890, by 450,000 tons. There have been some cancellations of orders lately, which may make the year's total less than expected, but on the other hand the first

IRON AND STEEL EXPORTS—GROSS TONS.

	April,		Ten months ending April,	
	1909.	1910.	1909.	1910.
Scrap	2,154	1,764	17,373	10,821
Pig iron	2,206	11,757	37,211	63,103
Billets, sheet bars, etc.	11,857	168	84,776	49,133
Wire rods	2,060	4,562	9,769	20,608
Rails	18,246	19,732	182,521	308,670
Structural iron and steel	6,346	15,441	87,011	88,722
Bar iron	838	1,749	9,238	12,587
Steel bars	5,709	7,227	40,698	72,861
Sheets and plates	16,331	23,006	107,906	194,712
Tin plates	556	1,339	3,824	9,457
Hoop, band and scroll	238	511	2,944	4,059
Barb wire	5,596	7,128	55,517	60,504
All other wire	7,172	8,032	54,945	64,776
Wire nails and spikes	2,078	3,895	22,768	29,097
Cut nails and spikes	1,035	535	6,186	7,418
All other, including tacks	457	433	5,495	6,481
Pipes and fittings	18,032	10,642	106,524	137,477
Totals	100,911	117,921	834,706	1,140,486

IRON AND STEEL IMPORTS—GROSS TONS.

	April,		Ten months ending April,	
	1909.	1910.	1909.	1910.
Scrap	245	4,255	4,490	113,117
Pig iron	8,117	24,034	85,285	202,201
Billets, bars and steel n. e. s.	922	5,308	10,516	30,912
Wire rods	914	2,092	9,828	11,866
Rails	85	1,147	1,286	6,304
Structural	393	2,594	5,321	8,242
Bar iron	755	4,968	13,550	25,460
Sheets and plates	389	1,422	2,818	5,964
Tin plates	5,895	5,619	40,237	56,467
Totals	17,715	51,439	173,331	460,533

EXPORTS OF TONNAGE LINES—GROSS TONS.

	1907.	1908.	1909.	1910.
January	102,630	74,353	70 089	118,652
February	87,912	81,773	84,860	110,224
March	112,787	96,681	94,522	124,980
April	132,790	93,285	100,904	117,921
May	91,543	64,041	109,977	.....
June	92,996	69,770	114,721	.....
July	122,240	86,796	100,680	.....
August	118,792	86,244	105,694	.....
September	114,819	76,732	97,387	.....
October	123,170	85,766	110,821	.....
November	116,309	71,130	115,943	.....
December	86,019	77,659	137,688	.....
Totals	1,301,979	964,242	1,243,462	471,777

VALUE OF IRON AND STEEL EXPORTS—TONNAGE AND NON-TONNAGE.

	1907.	1908.	1909.	1910.
January	$ 14,327,926	$ 13,468,058	$ 10,329,388	$14,513,394
February	13,946,842	14,063,559	10,947,159	13,949,082
March	16,419,116	15,168,155	13,874,461	17,258,503
April	17.684,863	15,455,319	13,058,054	16,529,254
May	14,594,043	11,281,415	12,993,197	.....
June	17,226,259	11,677,944	13,779,736	.....
July	17,614,017	12,085,951	11,866,772	.....
August	17,587,181	12,058,561	14,136,219	.....
September	16,830 160	11,221,799	12,966,908	.....
October	18,786,750	11,505,063	14,249,598	.....
November	17,051,755	10,895,549	14,434,690	.....
December	14,997,869	12,231,741	15,075,183	.....
Totals	$197,066,781	$151,113,114	$157,680,331	$62,250,233

four months of a year are not representative of the year's movement, as regards imports from British North America and Scandinavia, as can be observed from the table to be given below, showing the source of imports last year and in the first four months of this year. Total iron ore imports in the past seven calendar years and by months since the first of last year have been as follows, in gross tons:

1903	980,440
1904	487,613
1905	845,651
1906	1,060,390
1907	1,229,168
1908	776,898
1909	1,696,411

	1909.	1910.
January	105,233	284,823
February	61,749	170,427
March	108,676	163,633
April	74,782	206,135
May	97,393	.....
June	124,714	.....
July	172,316	.....
August	209,855	.....
September	164,613	.....
October	179,505	.....
November	174,976	.....
December	222,609	.....
Total	1,696,411	825,018

The sources of our iron ore imports have been as follows, for the calendar year 1909 and the first four months of this year:

	Year, 1909.	Four months, 1910.
Europe	464,065	271,784
British North America	251,550	14,254
Cuba	927,774	502,680
Other countries	53,022	36,300
Totals	1,696,411	825,018

Other Imports.

Our imports of scrap in April were light, only 4,255 tons, against 19,000 tons in January and 14,000 tons each in February and March. Imports of pig iron, manganese metals, ferro-silicon, etc., amounted to 24,034 tons, against an average of about 20,000 tons monthly in the preceding nine months. Imports of billets, structural material and bar iron were considerably above the average, although the imports of all iron and steel, exclusive of scrap, amounted to only 23,150 tons in April.

PLANS REBUILDING SHORTLY.

The Cleveland Co-operative Stove Co., whose plant was recently damaged by fire, expects to commence rebuilding operations as soon as its insurance is adjusted, which will probably be some time this week. The fire did considerable damage not only to the building, but also to the equipment, including the cupola, engines, dynamos, shafting, etc., the loss being estimated at $100,000. When the plant is running normally, its output is from 150 to 200 stoves per day.

PLANT PINE TREES

For Future Mine Timber Supply—Hill Mine Enters Shipping List.

Republic, Mich., June 13.

The Penn Iron Mining Co., subsidiary to the Cambria Steel Co., has planted in Norway township, Menominee range, 40,000 white pine seedlings obtained from the Michigan public domain commission, and will give the young trees the attention and protection necessary to insure their growth. Timber adequate for use for mining purposes is growing steadily scarcer in the Lake Superior region, and it commands much higher prices than a few years ago. A great amount of timber was destroyed by forest fires this spring.

The Duluth, Missabi & Northern and the Great Northern railroads are now building tracks to serve the open pit and shaft of the Hill mine which the Steel Corporation has opened at Marble and shipping from this new mine has begun. Although the mine is in the district in which the ores are often sandy and require washing the ore from, the Hill does not require such treatment. Shipments so far have run about 50 carloads a day but this amount is to be considerably increased. The rapid development of this mine has been remarkable, as the ground was not cleared two years ago and the village of Marble was represented by a side track.

One of a number of other mines that the Steel Corporation is opening is the Leonidas, in the Eveleth district of the Mesabi. This property will be an underground producer, and it will be a big one, diamond drilling having determined that the ore deposits are of extensive proportions. The shaft, which already is down 200 feet, will be one of the very deepest on the range. It will possess the further distinction of being lined with steel from top to bottom. The Leonidas will join the ranks of the shippers next year.

The work of constructing a concrete shaft at the Armour mine at Crosby, on the Cuyuna range, has been started. It is being done by the Foundation company of New York, which has also begun building a concrete shaft on the Vermillion range for the North American Mining Co. The Foundation company is now erecting concrete shafts on all three iron ranges of northern Minnesota. The Armour is a property of the Rogers-Brown Ore company and is in Section 11, 46-29. It will be the second Cuyuna range mine to be recorded in the shipping list, an event which will take place next year. The Kennedy, the pioneer of the district and likewise a property of the Rogers-Brown Co., will send out its first ore this season.

The concrete shaft at the North American tract, which is in the Soudan district, will be sunk to a depth of 100 feet. Firm ground will be encountered at that point and thereafter it will be possible to sink by ordinary mining methods. There probably never was a time when exploratory work on the Vermillion range was as active as at present. A large number of tracts are being tested. Excepting the St. Clair property, now in course of development and which is the first producer to be opened on the range in more than a score of years, it does not appear, however, that the future of any of the various tracts is definitely assured. Ore however has been encountered at a number of points, and as far as quality is concerned there can be no complaint. Whether the deposits are of sufficient extent is the question.

MILL OWNERS WILL ENTER WAGE CONFERENCE.

Independent sheet and tin plate makers and the wage scale committee of the Amalgamated Association of Iron, Steel and Tin Workers will meet in Pittsburg, Thursday of this week, to consider the proposed new scale which will become effective July 1. Instead of appointing a wage scale committee, the independents will enter the conference as individuals this year, and the wage scale committee of the Amalgamated Association will also meet officials of the Republic Iron & Steel Co. this week or next.

HAN YANG PIG PRODUCTION.

Reporting on the contract made by the Western Steel Corporation with the Han Yang Iron & Steel Works for the purchase of 36,000 tons of pig iron a year, with the option of taking 100,000 tons a year over a period of 15 years, United States Vice Consul Hubert G. Baugh, Hankow, states that the output of the Han Yang works in 1909 was 74,000 tons of pig. A second furnace is building which will double that capacity. The shipments from the works in 1909 were 44,300 tons, of which 16,800 tons went to Shanghai and other Chinese ports, 23,700 tons to Japan, and 3,800 tons to the United States.

The Vulcan Gear Works, Detroit, has increased its capital stock from $25,000 to $100,000.

STEADY DECLINE

In Volume of Shipments Handled by American Vessels.

Washington, D. C., June 11.

In view of the disposition manifested by congress to defer from year to year and from congress to congress, action upon the pending bills to aid the over-ocean carrying trade of the United States, it is important to note the information which comes to the government departments here regarding the continued falling off of American shipping in the foreign trade.

Consular Assistant Ross J. Hazeltine, of Halifax, forwards a report to the bureau of manufactures showing that, while the volume of trade between the Nova Scotian port and the United States has increased from $2,000,000 to $3,500,000 in the last 50 years, American vessels, which formerly carried practically all the trade, have been supplanted in the last 30 years by Canadian vessels manned by Canadian crews. He says:

In 50 years the declared exports from Halifax to the United States have increased 300 per cent, and the imports therefrom have more than doubled. Prior to 1878 practically all this trade was carried in American bottoms, but that year was the high-water mark, and the decline since then has been remarkable. In 1878, 107 American vessels (93 steam and 14 sailing), aggregating 124,251 tons, entered the port of Halifax; in 1908 only 25 American vessels (9 steam and 16 sailing), aggregating 14,614 tons, entered the port.

In 1868 the value of the outward and inward cargoes from Halifax carcied by American vessels was $2,346,830, which represented practically all the ocean-going trade. In 1909, American vessels carried only $179,645 worth of commerce aggregating $3,500,000. American vessels now carry less than one-thirteenth of the value of the cargoes of 40 years ago, while the commerce has increased considerably over 60 per cent since that time; or, in other words, American participation in the carrying trade has decreased from practically 100 per cent in 1868 to less than 2 per cent in 1909.

There has also been vast difference in the nature of the cargoes carried in American vessels. In 1878, cargoes from the United States consisted of general merchandise, manufactures and foodstuffs; in 1908, inward cargo carried in American bottoms was valued at $185,649, of which $140,000 was petroleum transported in the company's own barges that returned to the United States in ballast. In fact, the only American vessels now engaged in commerce between this port and the United States are oil and coal vessels, fishing schooners owned by American firms, and lumber schooners chartered by American mills having extensive interests in lumber lands of the maritime provinces.

The loss to American shipping interests on account of this decline has been enormous. During the past 25 or 30 years, cargoes valued at over $60,000,000 have been carried between Halifax and the United States by Canadian vessels. The time in transit is one to one and one-half days, and the profits, which have proved an excellent return on the investment, offset to a large extent the balance of trade in favor of the United States.

COMPLETION OF BAKER DROP FORGE PLANT.

The Baker Drop Forge Co., Jackson, Mich., has completed its new shop, and will shortly place it in operation. The forge building is entirely of steel construction, with cement floors and dock. In it there have been installed eight board drop and air hammers, and in addition four steam hammers will be installed in a short time. The building is 60 x 170 feet, and in addition to it there is a cement oil tank house containing two steel tanks, of 11,000 gallons capacity each. The machinery equipment is all new, of the latest and heaviest patterns. The entire plant, when fully completed, will be one of the most modern and well designed shops in the country. Its product will consist largely of front axles, crank shaft connecting rods, and a general line of small work incidental to the trade.

The business is under the immediate supervision of President W. H. Baker, well known to the automobile trade. The company is really an off-shoot of the Frost Gear & Machine Co., the stockholders of both concerns being almost identical. The two plants are located side by side on the Michigan Central freight belt, which also reaches various like manufacturing concerns in Jackson.

COAL AND COKE COMPANY REPORT.

According to reports submitted by President Alexander Dempster, of the Monongahela River Consolidated Coal & Coke Co., at the regular monthly meeting of the board of directors, on June 2, the gross earnings for the first six months of the fiscal year ending April 30, 1910, amounted to $775,035.95, as compared with $978,510.73 for the corresponding period of the previous year, a decrease of $203,474.78. The report shows a gain in rail and river tonnage during the first six months of 305,974 tons.

Phelps, Dodge & Co., Inc., have declared a quarterly dividend of $2.50 a share, payable June 29.

DISAPPOINTING

Is Volume of Business in the German Market.

Dusseldorf, June 2.

A general policy of reserve is being observed by the German iron and steel trade, few being inclined to undertake obligations far into the future. While prospects for spring business had been bright, yet the actual volume of business transacted has proved disappointing. The strike in the building trades throughout Germany continues, and there is little prospect of it being terminated as yet. This strike, together with the marked decrease in demand on the part of the state railways, keeps the inland business small. The effect upon the export business of disappointing reports from America tends to create shyness on the part of buyers, there being keen competition for the few orders remaining to be placed.

Raw materials, especially foreign ores, remain very firm and scarce at advancing prices. Coke is in good demand and it is expected to rise in price in the autumn from the present price of 16 marks ($3.80) to 18 marks ($4.30) per ton for the best furnace coke. Pig iron, especially low phosphorus iron, is weak and much of this iron is offered for this year's delivery. The best Westphalian hematite is quoted officially today at 66 marks ($15.75), but it can be had at 62 marks ($14.75) per ton, f. o. t. makers' works. For 1911 no offers are obtainable because works are forming a new pig iron syndicate, which may be consummated by Jan. 1, 1911, or possibly sooner. In consequence of this proposed syndicate, it is believed that higher prices by far for all grades of pig iron will be forthcoming. It is thought that the increase in prices will amount to at least 10 marks ($2.50). Old materal is weak and prices are falling. Orders for railway material are very small and prices received for what material has been sold have been poor. The situation in plates, sheets, billets, wire and tubes is favorable. Makers of the latter products have booked orders in such volume as insures steady work for the next three or four months.

As to the financial situation, money is cheap and probably will remain so into the autumn. The general opinion appears to be that with the ending of the building trades strike and with the curtailment of pig iron producton in America showing its effect, business will once more improve on the continent.

CONVENTION OF ALLIED FOUNDRY ASSOCIATIONS

Founders' Week in the City of the Straits—Proceedings of the Annual Meetings of the A. F. A. and the A. B. F. A.—Exposition of Foundry Supplies and Equipment — Prize - Winning Exhibits

The interest manifested in the advancement of the foundry industry of the United States and Canada was reflected by the record-breaking attendance at the fifteenth annual meeting of the American Foundrymen's Association and allied organizations, held in Detroit, June 6-10. The registration exceeded 2,000 and nearly 4,000 tickets were sold for admission to the exposition of foundry supplies and equipment, given by the Foundry and Manufacturers' Supply Association at the Michigan State Fair Grounds. In addition to the convention of the American Foundrymen's Association, the annual meetings of the American Brass Founders' Association, the Associated Foundry Foremen and the Foundry and Manufacturers' Supply Association were held during Founders' Week in the beautiful City of the Straits. Thirteen years ago the first convention of American Foundrymen was held in Detroit. The attendance was small, when compared with the throngs that now come to these meetings, but even at that time great interest was displayed in the educational advancement of foundry work, and the rapid growth of the society was foreshadowed. Professional sessions of the American Brass Founders' Association and the American Foundrymen's Association were held daily; and throughout the week the exposition buildings were crowded with interested spectators, some of whom came thousands of miles to witness practical demonstrations of the latest labor-saving devices for foundry use. The entertainment program reflected great credit upon the Detroit local committee, and with boat rides, a smoker, and banquets for the men, and a theater party and an automobile sight-seeing trip for the ladies, there remained nothing further that could be desired by the visitors.

The report of the opening session was published in the last issue of THE IRON TRADE REVIEW, and following the meeting of the American Brass Founders' Association, Tuesday afternoon, the first professional session of the American Foundrymen's Association was called to order.

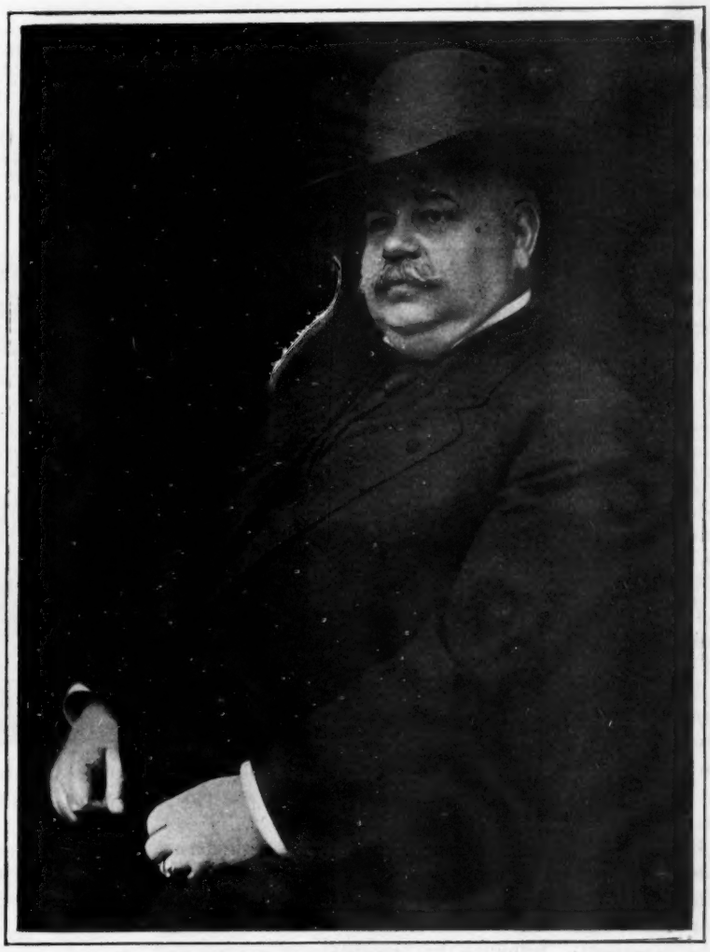
"Foundry Efficiency" was the subject of an address delivered by Benjamin D. Fuller, superintendent of the Westinghouse Electric & Mfg. Co., Cleveland, an abstract of which is given herewith:

The question of raising the efficiency of the shop is a problem constantly confronting the manager or superintendent in charge. Excess weight of castings, due to careless ramming, weak flasks, etc., means not only poor castings, but expensive castings, in many ways. The loss in machining is considerable, as jigs will not fit properly, and the heavier the casting the greater the loss.

A card record of shipments, by pattern number, is maintained. Upon the card, weights are recorded as separate shipments are made. Gains or losses are tabulated in a monthly report, each foreman's department being segregated. The advantage of the molding machine has been emphasized by carefully following up this matter, as invariably the transfer from hand to machine molding shows a decided gain in quality, as well as a reduction in weight. An efficiency record is also maintained, which shows daily the amount cast, in pounds, by each man, the good and bad tonnage, the per cent of scrap made in each department, on a given product, and it shows whether the man is above or below the average of his department for this product. The foreman's record is determined by the average of all the men working under him.

Thomas D. West followed with a paper entitled, "The Personal Equation in Accidents," a summary of which is given below:

Recently the Minnesota Employers' Association and the Federation of Labor, jointly petitioned the governor of Minnesota, asking an investigation by the legislature, looking toward a change in the present system of compensation for employes in case of accident. The petitioners stated that they were convinced that the majority of accidents that happen in the course of employment occur by reason of



MAJOR JOSEPH T. SPEER, OF PITTSBURG, WHO WAS ELECTED PRESIDENT OF THE AMERICAN FOUNDRYMEN'S ASSOCIATION.

dangers incident to the employment, and without fault on the part of either employer or employe.

However, to advance the doctrine that the majority of accidents in the trade are incident to it, and neither the employe nor employer is at fault, is a step likely to have serious results. It removes a large part of the personal

The Foundry Cup Awarded to the Tabor Mfg. Co., Philadelphia, for the Best Operating Exhibit.

responsibility from the operative, and makes him heedless regarding the effects of his actions upon the safety of others. Prevention of accidents by the removal of all the factors that tend to cause them should be of prime importance.

An honest effort should be made by both employer and employe to remedy individual faults, which would eliminate 80 per cent of the accidents in shops. The operative must be taught that his part is by far the most important in the life of the shop, so far as liability to accident is concerned, and the doctrine advanced that accidents are inherent to certain industries, irrespective of the conduct of either employer or employe, is a grave and dangerous fallacy.

The paper on "The Permanent Mold" was not presented, owing to the illness of Edgar Allen Custer, of Philadelphia. During the year the permanent mold has been further developed and pipe fittings, brake shoes and plow points are now successfully made by this process. Henry Cave, president of the Autogenous Welding Equipment Co, Springfield, Mass., then discussed the paper presented at the morning session on the oxy-acetylene welding process. He said that heating the castings in autogenous welding did not cause trouble from shrinkage, as he had repaired cylinder castings and after they were finished could detect no variation in the diameter or other dimension. In cutting off risers in the foundry, he found that the cost per square inch, using the jet of oxygen, was only 1 cent. He also told about the welding of two cylinders to a four-cylinder motor, making it a six-cylinder generator.

Wednesday Morning.

The report of the committee on chemical standards for iron castings was presented, Wednesday morning, by Dr. J. J. Porter, Cincinnati. What is probably the largest collection of analyses of iron castings ever gathered into one table was presented in this report. The sources of these data were three in number: First, published works; second, private notes of the chairman of the committee, and third, replies to the inquiries sent out by the committee.

At the last convention of the American Foundrymen's Association it was decided to make an attempt to formulate standards for iron castings in the belief that these would be of great use, both to the individual foundryman, and to the industry as a whole. Regarding the classification of castings, it is impossible to consider as separate cases all of the different patterns, nor is this desirable, since every foundry must classify its castings into comparatively few groups, which are each poured from one kind of iron. Thickness was, of course, taken into consideration, since this largely determines the percentage of silicon, and it was the aim of the committee to sub-divide the various classes according to section, wherever possible. In this respect the definitions of the American Society for Testing Materials, of the various classes of castings, were followed as closely as possible.

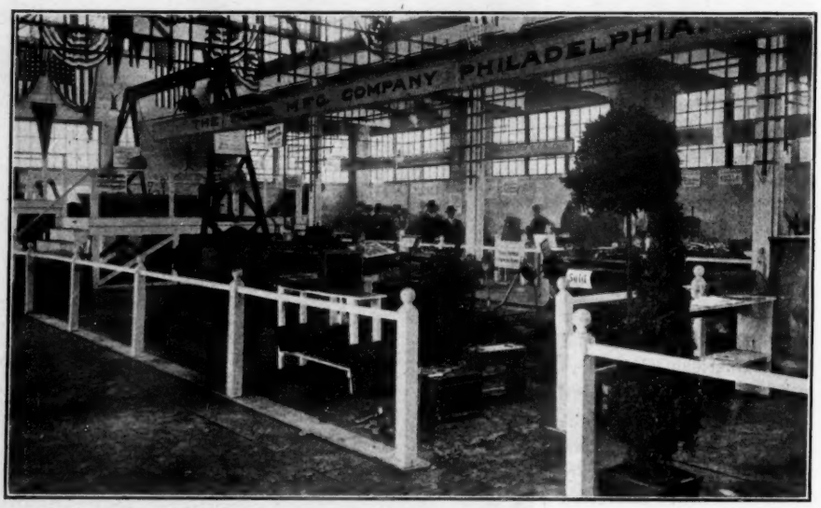
Castings less than ½ inch thick are known as light castings. Castings in which no section is less than 2 inches thick are heavy castings. Medium castings are those not included in these definitions. Malleable cast iron was omitted entirely, partly because of the small amount of data obtainable, and partly because its manufacture is a process different from that involved in the production of gray iron castings. The analyses cover more than 100 different kinds of castings, and from the reports, averages were obtained which are suggested as the best practice.

Thursday Morning.

"The Shockless Jarring Machine" was described in an able paper by Wilfred Lewis, of the Tabor Mfg. Co., Philadelphia, on Thursday morning. The paper, in abstract, follows.

The jarring machine is essentially a sand-packing machine, capable of ramming any mold, large or small, in a minute, or less time, and by the method employed the sand is rammed as it should be, densest at the surface of the pattern and of decreasing density above. The jarring machine is not universal in its application, nor should it be used without judgment and discrimination. Due regard must be given to the construction of a pattern so as to give a flow of sand chiefly in one direction. For the broad field adapted to its use there is nothing comparable to the jarring machine as a saver of time and money.

While the savings that can be effected are large, the interest on the investment, the depreciation of the machine and the consumption of power must be accounted for, and in addi-



The Tabor Mfg. Co.'s Molding Machine Display, Which was Awarded *The Foundry* Cup for the Best Operating Exhibit.

tion, the damage that may be caused by the action of the jarring machine upon finished molds, or even upon buildings in the neighborhood, and the annoyance caused by the noise and ground waves generally. This damage and annoyance has increased steadily with the increase in the size of machines and the weight of the loaded table, and to meet the serious objections various expedients have been adopted, among which may be mentioned a reduction in the stroke given, and a more or less resilient bedding for the anvil. These palliatives left much to be desired until the shockless jarring machine, with its up-rising anvil, to meet the falling table, was developed.

The Tabor shockless jarring machine is then described at length. The machine is now being built for a large foundry, to handle half molds weighing 25 tons. The table is a steel casting, 8 x 12 feet, with a lifting cylinder 3 feet in diameter, and the plunger base forming the anvil is a solid iron casting weighing 65,000 pounds. The total weight of the machine complete will probably be in excess of 90,000 pounds.

Attention is also called to the possibility of installing a machine of the shockless type on the upper floors of high buildings, where many foundries are now being located. The action of the machine is entirely free from jarring except where it is wanted on the work produced, and the pulsating variation in the floor load while operating is no greater than is usually experienced in the operation of power squeezers.

Discussion of Shockless Jarring Machine.

E. H. Mumford, of the Mumford Molding Machine Co., New York City, then presented a written discussion, similar to the one read at the spring meeting of the American Society of Mechanical Engineers, published in THE IRON TRADE REVIEW, June 9. In reply, Wilfred Lewis read a communication from A. E. Outerbridge, Philadelphia, which was likewise published in THE IRON TRADE REVIEW of June 9. In closing the discussion, Wilfred Lewis said that he was grateful for any well-founded criticism, whether favorable or otherwise, which might lead to further improvement, but he objected to unwarranted assumptions as the basis for conclusions which did not apply to the subject. Continuing, he said:

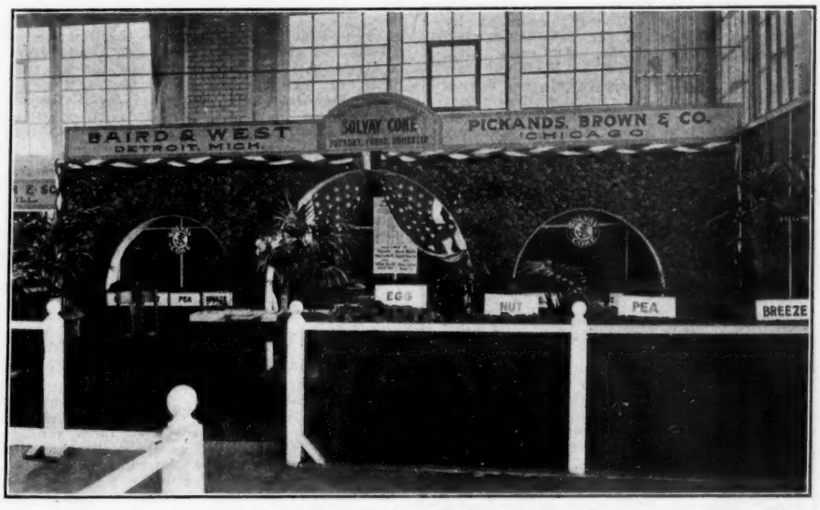
"It has been said that I treat the compacting of sand by jolt ramming machines as occurring uniformly and simultaneously throughout the mass, whereas, in the second paragraph of my paper, I say, referring to this method of ramming: 'The sand is rammed as it should be, densest at the surface of the pattern and of decreasing density above, thus favoring the escape of gases when the mold is poured.' I never had any other idea about it, and never met anyone who pretended to think that jar ramming formed a crust on top of a mold while the sand beneath was nice and soft. There is nothing in my paper to indicate in any way that my understanding of the process is at all different from the common understanding of it as set forth by my critic. Nor does the acceptance of this understanding affect my contention that the longer the stroke the greater the efficiency. The ramming effect referred to in my paper is the kinetic energy given out by a change in velocity due to impact, and utilized more or less in compacting the sand.

"The progressive nature of jar ramming from the bottom up, is, I believe, self-evident, but the relative density of the different parts of a mold can never be more than the relative weights of different parts per cubic foot and very far from infinite at any time. If it be true, as stated on very good authority, that the density of sand is increased 25 to 30 per cent by ramming, it can hardly be true, as stated now by the same authority, that the difference in density of the sand at the top and bottom of the mold is practically infinite at the first impact.

"As to the change in velocity of the table at the instant of impact, I mean, of course, the change in velocity during that very minute fraction of a second while the pressure of impact exceeds the static load. I do not mean the rate of change in velocity at the instant of impact, because that rate does not hold throughout the duration of contact, and it has very little to do with the final result."

Referring to the weight of the anvil being generally limited to the weight of the loaded table, he added that this conclusion was reached from a number of observations, confirmed indirectly by the same authority which now disputes it. Regarding the use of springs and the prejudice against them, he added that this was founded chiefly upon ignorance of the duties they should be made to perform. However, when good material is employed Mr. Lewis said that he had seldom known a spring to fail except

The Foundry CUP AWARDED TO BAIRD & WEST, SALES AGENTS FOR THE SOLVAY PROCESS CO., FOR THE BEST STILL EXHIBIT.



BAIRD & WEST'S DISPLAY OF SOLVAY COKE, WHICH WAS AWARDED *The Foundry* CUP FOR THE BEST STILL EXHIBIT.

from bad design. He furthermore stated that it is important to have the load central on any jarring machine, and since there is no difficulty in locating it in that position, he added that he would not discuss this feature.

Rejected Castings in Steel Foundries.

A paper entitled "Rejected Castings in Steel Foundries," by Samuel D. I. Emerson, of New York, was then read. An abstract of this paper is given below.

Attention is directed to the fact that the losses due to rejected castings in many steel foundries average from 8 to 9 per cent. Assuming that for such a plant it would be necessary to organize a special department with three extra men, the cost should not exceed $600 per month, and the rejections, which average 8 per cent, would be reduced to 5 per cent by these methods.

In a steel foundry where the author had an opportunity to study conditions, 63 different causes of rejections were found, many of which were accidental and of infrequent occurrence. Twelve different causes were responsible for more than 90 per cent of rejections; 75 per cent were covered by six causes, and to one cause, cracks, about 50 per cent of all rejections were attributable. After a careful study of these causes, the following conclusions were reached:

In steel foundries, rejections are pricipally due to accidents or to inefficient methods in core or molding departments.

Ninety per cent of rejections are mechanically avoidable, without reference to metallurgical difficulties.

With an adequate record, systematic and continual attention, rejections can be reduced to an average of 3 per cent.

In order to secure the continual attention required, a separate organization, with pay largely dependent upon results, is most effective.

In the discussion of this paper the question was raised as to the average of rejections of steel castings, and one member said that his foundry had shown an average of 2 per cent over a period of three years. Joseph J. Wilson, Detroit, was of the opinion, however, that much depends upon where the line is drawn in rejecting material, and R. A. Bull, Commonwealth Steel Co., Granite City, Ill., was of the opinion that 6 per cent was nearer the general average. Another member stated that the percentages of rejections might be 3, 5 or 10 per cent, according to the strictness of the requirements.

Industrial Education.

Paul Kreutzpointner, Altoona, Pa., presented the report of the committee on industrial education, which is, briefly, as follows:

An increasing interest in the educational work of the American Foundrymen's Association in the United States and foreign countries, was reported. The course of study recommended includes English, in common with reading from technical and trade journals, on topics of general interest, and pertaining to the occupation of the pupil. Exercises in composition, using as subjects such historical events, geographical facts or objects of natural history which are closely related with the practical necessities of the pupil. In all this work good penmanship is urged. Instruction in natural history should include a review of animal and plant life, as well as minerals which furnish raw materials for the various trades and industries in which the pupils are engaged. Elementary instruction in physics, free hand and mechanical drawing should be included, and the school shop, to be thoroughly effective, should be well supplied with machinery and appliances, as well as illustrations of interesting subjects relative to the industries of the locality where the school is located.

Albert S. Braughton commended the work of the committee and stated that his firm desired to receive all of the literature published by the American Foundrymen's Association on this subject.

Specifications for Foundry Coke.

Dr. Richard Moldenke then presented a paper containing suggested Specifications for Foundry Coke. These are presented herewith:

Coke bought under these specifications should be massive, in large pieces, and as free as possible from black ends and cinder.

SAMPLING.—Each carload, or its equivalent, shall be considered as a unit, and sampled by taking from the exposed surface at least one piece for each ton, and so as to fairly represent the shipment. These samples, properly broken down and ground to the fineness of coarse saw dust, well mixed and dried before analysis, shall be used as a basis for the payment of the shipment. In case of disagreement between buyer and seller, an independent chemist, mutually agreed upon, shall be employed to sample and analyze the coke, the cost to be borne by the party at fault.

BASE ANALYSIS.—The following analysis, representing an average grade of foundry coke, capable of being made in any of the districts supplying foundries, shall be considered the BASE, premiums and penalties to be calculated thereon as determined by the analysis on an agreed base price.

	Per cent.
Volatile matter	1.00
Fixed carbon	85.50
Ash	12.00
Sulphur	1.10

MOISTURE.—Payment shall be made on shipments on the basis of "dry coke." The weight received shall therefore be corrected by deducting the water contained. (Coke producers should add sufficient coke to their tonnage shipments to make up for the water included as shown by their own determinations.)

VOLATILE MATTER.—For every 0.50 per cent, or fraction thereof, above the 1.00 per cent allowed, deduct .. cents from the price. Over 2.50 per cent rejects the shipment, at the option of the purchaser.

FIXED CARBON.—For every 1.00 per cent, or fraction thereof, above 85.50 per cent, add, and for every 1.00 per cent, or fraction thereof, below 85.50 per cent, deduct .. cents. Below 78.50 per cent rejects the shipment at the option of the purchaser.

ASH.—For every 0.50 per cent, or fraction thereof, below 12.00 per cent, add, and for every 0.50 per cent, or fraction thereof, above 12.00 per cent, deduct .. cents from the price. Above 15.00 per cent rejects the shipment at the option of the purchaser.

SULPHUR.—For every 0.10 per cent, or frac-

Major Joseph T. Speer

Among its members, the American Foundrymen's Association has few more active workers than Major Joseph T. Speer, of Pittsburg, who was elected president of this organization. Last year he was vice president of this society, and also served as chief executive of the Pittsburg Foundrymen's Association. He is a practical foundryman of wide experience, and as president of the Pittsburg Valve Foundry & Construction Co., is prominent in the large business affairs of the Smoky City.

Major Speer was born in the fourth ward, Pittsburg, and finished his education in the Western University of Pennsylvania, now the University of Pittsburg. Immediately after leaving school, he entered the employ of Hall & Speer, plow manufacturers, of which firm his father, Alexander Speer, was senior member. After four years' apprenticeship in the pattern shop, he became a journeyman patternmaker and after a four months' trip to Europe, re-entered the employ of this concern and devoted his time entirely to mastering the foundry end of the business. In 1874, the firm name was changed to Alexander Speer & Sons, and William W. Speer became head of the company upon the death of Alexander Speer in 1876.

Hall & Speer were among the pioneer plow manufacturers of the United States, having engaged in this line of foundry work early in the last century. In 1876, Major Speer was sent to South America to establish agencies for the sale of plows in this territory. Headquarters were established at Havana. Major Speer remained from four to six months each year in the tropics and thoroughly familiarized himself with the agricultural resources of this great domain. This Havana agency was maintained until 1896, when the company disposed of its interests in the sale of plows. During his residence in Cuba, Major Speer became known as "Arados Hall," the Spanish term for Hall plow, the trade mark for the brand of plows he sold.

Returning to the United States in 1897, Major Speer succeeded to the management of Alexander Speer & Sons, when his elder brother, William W. Speer, became president of the Dollar Savings Bank, of Pittsburg. He continued in this capacity until November, 1899, when the Pittsburg Valve Foundry & Construction Co. was organized by the consolidation of the firm of Atwood & McCaffery; Shook, Anderson Mfg. Co.; Pittsburg Valve & Machine Co.; the pipe fitting department of Wilson & Snyder, and the foundry department of Alexander Speer & Sons. Henry M. Atwood was president of this company for two years, when the position of chairman of the board of directors was created and Major Speer succeeded to the presidency and active management.

To Major Speer's untiring energy must be credited much of the recent advancement in the production of gray iron and steel castings for high pressure service and he was among the first to use semi-steel in the manufacture of valves.

Major Speer secured his military title through years of service with the Duquesne Grays, having joined this organization as a private in 1874, and continued as a member until after it became a part of the 18th regiment. He was promoted through the various non-commissioned offices, became captain and paymaster of the regimental staff and was later transferred to the 19th regiment in the same capacity. He saw active service during the Pittsburg railroad riots in 1877 and served as a volunteer for three months in the anthracite coal region riots. When the National Guard of Pennsylvania was reorganized, he was made quartermaster of the 18th regiment and was later elected Major. He resigned from the service in 1888. Major Speer was married in 1879 to a daughter of Hon. George Miller, of Virginia. Mrs. Speer died in 1886. Major Speer has traveled extensively, having made trips to Europe in 1872, 1874 and 1878, and had a permanent residence in Munich, Germany, during 1889, 1890 and a part of 1901.

tion thereof, below 1.10 per cent, add, and for every 0.10 per cent, or fraction thereof, above, deduct .. cents from the price. Above 1.30 per cent rejects the shipment at the option of the purchaser.

SHATTER TEST.—On arrival of the shipment, the coke shall be subjected to a shatter test, as described below. The percentage of breeze thus determined, above 5 per cent of the coke, shall be deducted from the amount of coke to be paid for (after allowing for the water), and paid at breeze prices, previously agreed upon. Above 25 per cent fine coke rejects the shipment at the option of the purchaser. Fine coke shall be coke that passes through a wire screen with square holes 2 inches in the clear.

The apparatus for making the shatter test should be a box capable of holding at least 100 pounds coke, supported with the bottom 6 feet above a cast iron plate. The doors on the bottom of the box shall be so hinged and latched that they will swing freely away when opened, and will not impede the fall of the coke. Boards shall be put around the cast iron plate so that no coke may be lost.

A sample of approximately 50 pounds is taken at random from the car, using a 1¼-inch tine fork, and placed in the box without attempt to arrange it therein. The entire material shall be dropped four times upon the cast iron plate, the small material and the dust being returned with the large coke each time.

After the fourth drop the material is screened as above stated, the screen to be in horizontal position, shaken once only, and no attempt made to put the small pieces through especially.

The coke remaining shall be weighed and the percentage of the fine coke determined.

If the sum of the weight indicates a loss of over 1 per cent, the test shall be rejected and a new one made.

Rejection by reason of failure to pass the shatter test shall not take place until at least two check tests have been made.

Discussion of Coke Specifications.

Warren S. Blauvelt suggested that where deductions were made the concern should be given a percentage of the original price, rather than so many cents per ton. In addition, he stated that in making tests there are difficulties which should be understood by both parties to the contract. One of these is connected with obtaining a representative sample of coke, as, for example, due to the localization of sulphur in certain portions of the shipment. He was of the opinion that the shatter tests would very much reduce the coal area that can be drawn upon for foundry coke. It would mean that much of the coke now sold to the foundryman would have to be marketed for domestic use, and foundry coke would necessarily be sold at an increased price. Another speaker said that the question of penalties and bonuses presented many difficulties in case of disagreement over the analysis of the coke. Foundrymen only have analyses made when they are experiencing difficulties, and it is a question whether the amount of coke used in the ordinary foundry is large enough to warrant the analysis of every carload.

T. J. Best said that many foundrymen are of the opinion that coke containing as high as 1 per cent sulphur is not fit for foundry use. He believed that 1.10 per cent, as given in the suggested specifications, was too high, and he preferred 0.80 per cent sulphur.

H. E. Field, while favorable to specifications for foundry coke, said he believed that foundrymen might get into deep water in taking up this question. The matter of moisture particularly presents difficulties, and it is impossible to know exactly the condition of the coke at the point of shipment without having a representative on the ground. He thought the question of volatile matter was well covered in the suggested specifications. On ash, however, he would have a bottom limit, as some cokes are too low in ash. The sulphur maximum, he believed, was too high, since most Connellsville producers sell foundry coke on a 0.90 per cent guarantee. He considered the questions involved to be largely matters between individual buyers and individual sellers, and therefore was of the opinion that a broad specification rather than one going into minute detail, is required.

"Foundry Transportation Methods," by David Gaehr, was read by title. A. W. Moyer, of the J. W. Paxson Co., Philadelphia, then read a paper on "Overhead Transportation for the Foundry," which illustrated with lantern slides the Moyer overhead trolley system.

Election of Officers.

The last session of the convention was held on Friday morning. An invitation was extended to hold the next annual meeting in Pittsburg, and a resolution was adopted instructing the executive committee to make arrangements for holding the next annual meeting in the Smoky City. Secretary Moldenke said that the cities of Milwaukee, St. Louis, Dayton and Rochester, were all anxious to have the association arrange to hold future meetings at these points.

The president was empowered to appoint a committee of five who will have charge of the educational program for the next meeting. The committee will arrange for papers, thus relieving the secretary of a large amount of work which he was called upon to perform in the past. A committee of two will also be appointed to audit the books of the organization. Arthur T. Waterfall, retiring president, was then elected an honorary member of the American Foundrymen's Association. Before adjournment the following resolution was unanimously adopted:

Whereas, it is unanimously conceded that the Detroit convention has been a perfect success, which success has resulted from the untiring efforts of the Detroit local convention committee, and

Whereas, it is the desire of the American Foundrymen's Association as a whole that the appreciation of the Detroit convention committee should appear on the records of this Association, therefore be it

Resolved, that the American Foundrymen's Association tender to the entire Detroit convention committee, chairmen of the various committees, the ladies of the reception committee, who have done so much to entertain the visiting ladies, and succeeded so well, in fact to all those who have worked so faithfully to make the convention the success it has been, their unanimous thanks and deep appreciation.

Officers for the ensuing year were elected as follows:

President, Joseph T. Speer, Pittsburg Valve, Foundry & Construction Co., Pittsburg.

Vice Presidents:

First district—F. B. Farnsworth, McLagon Foundry Co., New Haven, Conn.

Second district—Walter Wood, R. D. Wood & Co., Camden, N. J.

Third district—W. A. Bole, Westinghouse Machine Co., East Pittsburg.

Fourth district—William Gilbert, Buckeye Foundry Co., Cincinnati.

Fifth district—J. J. Wilson, General Motors Co., Detroit.

Sixth district—T. W. Sheriffs, Sheriffs Mfg. Co., Milwaukee.

Seventh district—Alfred E. Howell, Phillips & Buttorf Mfg. Co., Nashville, Tenn.

Eighth district—A. N. W. Clare, Clare Stove Co., Preston, Ont.

Secretary-treasurer, Richard Moldenke, Watchung, N. J.

The nominating committee consisted of W. H. McFadden, chairman; L. L. Anthes, H. A. Carpenter, Alfred E. Howell and J. J. Wilson.

American Brass Founders' Association.

All of the professional sessions of the American Brass Founders' Association, which immediately preceded the meetings of the American Foundrymen's Association, were largely attended. Tuesday afternoon, Irwin S. Sperry read a paper entitled "Fluxes as Applied to the Brass Foundry." He outlined briefly the principal fluxes that are used in the brass foundry. For aluminum, chloride of zinc has proved a very efficient flux, and for nickel a flux consisting of three parts of lime and one part of fluorspar, is used. For copper the selection of the proper flux depends upon the alloy to be made. For brass, common salt is very efficacious. He suggested that a covering of charcoal should be used in melting all of the metals enumerat-

ed, as it supplies a reducing atmosphere and prevents oxidation.

At the second session, Wednesday morning, a paper was presented by Jesse L. Jones, Pittsburg, entitled "The Selling of Brass Foundry Refuse." He stated that all brass foundries produce certain by-products, such as ashes, tailings, skimmings, grindings, turnings, etc. It has generally been more economical to sell these to the smelter and refiner than for the foundry to handle them itself, owing to the relatively small amount of such by-products produced, which do not warrant the installation of the necessary equipment to handle them. The sale of this refuse by assay was suggested, as it emphasizes the necessity of carefully grading all scrap, and does not permit the mixing of low grade scrap with high grade material.

This paper was followed by an interesting address entitled "The Electrical Power Required for Melting Brass, Bronze, Etc., by Prof. J. W. Richards, Lehigh University, South Bethlehem, Pa.

Co-operative Courses in Metallurgy.

Dr. Frank T. F. Stephenson, Detroit, discussed the value of trade associations at the Thursday morning session. His address was followed by a paper on "Co-operative Courses in Metallurgy," by Dr. J. J. Porter, Cincinnati. He stated that there are two classes of men considered as possibilities for the executive side of the foundry—practical molders, and engineering graduates. The ideal foundryman, therefore, he believes should combine practical knowledge with technical training. The University of Cincinnati is attempting to train men in this line, and the system is briefly outlined as follows:

Students spend half their time in the shop and half in the university. They act as apprentices in the shop and are paid for their work. The student is advanced through all departments of the shop and has a thorough training in metallurgy and engineering, and is given practical foundry problems for solution. The professors in charge of the work make the rounds of the shop where the students are working, note the kind of work the men are engaged in, and in the following week they examine them on this work in the university. This course is receiving the hearty co-operation and endorsement of the Cincinnati founders.

At the closing session of the association the following papers were read: "Modern Foundry Progress," by Charles T. Bragg, Mansfield, O.; "Mounting Patterns on Molding Machines," by Hugh McPhee, Tarrytown, N. Y.; and "Analyses of Lead and Brass Alloys," by C. P. Karr, New York City.

Election of Officers.

Officers for the ensuing year were elected as follows:

President, N. K. B. Patch, Lumen Bearing Co., Toronto, Ont.

Vice presidents, Thomas Evans, Eynon-Evans Mfg. Co., Philadelphia; W. H. Carpenter, Bristol Brass Co., Bristol, Conn., rolling mill section; Richard Augenbraun, Yale & Towne Mfg. Co., Stamford, Conn.; W. L. Abate, Nathan Mfg. Co., New York City; L. W. Olson, Ohio Brass Co., Mansfield, O.; J. N. Gamble, National Tube Co., Kewanee, Ill.; John Wolff, L. Wolff Mfg. Co., Chicago; J. Cessna Sharp, J. C. Sharp Brass Works, Chattanooga, Tenn.; Murray Woodbridge, General Brass Works, Toronto; Richard R. Mitchell, Robert Mitchell Co., Ltd., Montreal, Can.

Secretary-treasurer, W. M. Corse, Lumen Bearing Co., Buffalo.

Associated Foundry Foremen.

At the annual meeting of the Associated Foundry Foremen, Robert B. Thomson, of the Buffalo-Pitts Co., Buffalo, was elected president. He was instructed to appoint a committee of three to select a secretary. Throughout the convention week many foundry foremen joined the association, more than 200 new members having been enrolled.

Silver Cups for Best Exhibit.

A subscription dinner was given by the Foundry and Manufacturers' Supply Association at the Hotel Cadillac, Thursday evening. Frederic B. Stevens presided and toasts were responded to by F. N. Perkins, H. M. Leland, E. H. Mumford, J. P. Pero, A. I. Findley, C. E. Hoyt, A. O. Backert and Stanley G. Flagg Jr.

A feature of this pleasant affair was the announcement of the winners of the two silver loving cups presented by *The Foundry* for the best operating and best still exhibits at the exposition of foundry supplies and equipment. The committee on awards consisted of Henry A. Carpenter, chairman, Stanley G. Flagg Jr., Major Joseph T. Speer, A. E. Howell and Arthur T. Waterfall. The points considered in making the awards were magnitude of the exhibit, general appearance, novelty, utility and the appearance of the exhibit as a whole. Inasmuch as Henry A. Carpenter was compelled to leave early in the evening, the announcement of the awards was made by Arthur T. Waterfall. He briefly outlined the difficulties that confronted the committee owing to the large number of excellent exhibits, and added, that after mature deliberation it was decided to award *The Foundry* cup for the best operating exhibit to the Tabor Mfg. Co., Philadelphia, and *The Foundry* cup for the best still exhibit to Baird & West, of Detroit, agents of the Solvay Process Co. A large number of concerns were given honorable mention, and many others were deserving of credit for making, as a whole, the best exhibit of foundry equipment this country has ever produced. The awarding of the loving cups for the best exhibits by *The Foundry* will be made an annual feature of these shows.

Foundry and Manufacturers' Supply Association.

The annual meeting of the Foundry and Manufacturers' Supply Association was held at the Cadillac Hotel, Friday evening. The report of the secretary, C. E. Hoyt, was particularly gratifying. The membership of the organization is now 119, against 99 a year ago, a net gain of 20. The space sold to exhibitors totalled 30,110 square feet, as compared with 17,300 square feet at the Cincinnati exhibit one year ago. A total of $15,055.17 was realized from the sale of space and the cash balance reported in the treasury on June 6, was $15,424.10. From the admissions, $1,490 was realized, and 3,892 tickets were sold. J. S. McCormick, treasurer, in presenting his report, said that the organization should be congratulated upon its excellent financial standing, which is in striking contrast to the financial condition of the association in its early days. A resolution to refund to the local committee the sum of $1,200 presented to the Foundry and Manufacturers' Supply Association was withdrawn when it was shown that the extraordinary expenses incurred in making preparations for the exhibit far exceeded this sum.

The question of organizing a stock company to conduct the exhibits was discussed at length, and the president was instructed to appoint a committee of three to investigate and to report to the members within 90 days. The secretary's salary was increased from $1,000 to $2,000 per year. An invitation was presented by Major Joseph T. Speer to hold the next exposition of foundry supplies and equipment in Pittsburg, where the American Foundrymen's Association will meet next year.

Officers for the ensuing year were unanimously elected as follows:

President, George R. Rayner, Car-

borundum Co., Niagara Falls, N. Y.

First vice president, Wilfred Lewis, Tabor Mfg. Co., Philadelphia.

Second vice president, E. D. Frohman, S. Obermayer Co., Pittsburg.

Third vice president, T. S. Hammond, Whiting Foundry Equipment Co., Harvey, Ill.

Fourth vice president, Harry D. Gates, Thomas W. Pangborn Co., New York.

Trustees: F. N. Perkins, Arcade Mfg. Co., Freeport, Ill.; H. M. Boughер, J. W. Paxson Co., Philadelphia, and E. H. Stedman, Curtis & Co. Mfg. Co., St. Louis.

Secretary, C. E. Hoyt, Lewis Institute, Chicago.

Treasurer, J. S. McCormick, J. S. McCormick Co., Pittsburg.

THE EXHIBITS.

The wonderful advancement in American foundry practice that has been recorded in recent years, was reflected in the exposition of foundry supplies and equipment that was conducted in connection with the convention of the allied foundry associations at the Michigan State Fair Grounds by the Foundry and Manufacturers' Supply Association. The 86 exhibits covered more than 30,000 square feet of floor space, which is more than double the area required in previous years. The three large buildings set apart for the displays proved inadequate to house all of the exhibits, and brass melting furnaces, core ovens, ladle heaters, etc., shown under actual operating conditions, were located in a tent.

The molding machine display was notable and the number and variety of these foundry labor-saving device was indicative of the rapid forward strides made by the foundry industry in the last few years. On the large jarring machines, displayed by a number of concerns, molds were made weighing up to 26,000 pounds in weight. The buildings were constantly crowded and the visitors hailed from every section of the United States and Canada, while a number of foundrymen from abroad were also in attendance. A list of the exhibits follows:

ADAMS CO., Dubuque, Ia.—Molding machine exhibit consisted of 28 machines, which were operated. Other equipment shown included two grinders, pneumatic rappers, snap flasks, match-plates, flask trimmings, sprue cutters, etc. Represented by John Nicol, C. Reich, William Spensley and Glenn Muffly.

AMERICAN BLOWER CO., Detroit.—Electrically operated cupola blower was shown in operation. Other equipment included a slow speed exhaust fan, electric lighting set, electric forge blowers, small ventilating sets, etc. Represented by R. T. Coe, M. L. Diver, B. E. LaFollette, A. N. Kelley, W. A. Fletcher and J. C. Lewis.

ANTHONY CO., New York City.—Fuel oil crucible tilting furnace for melting non-ferrous metals was shown in operation. Represented by A. R. Anthony and John M. Neill.

ARCADE MFG. CO., Freeport, Ill.—Molding machine exhibit covered 2,600 square feet of floor space and included seven different types of molding machines for making molds for castings weighing from a few ounces to 26,000 pounds. Represented by E. H. Morgan, Charles Morgan, F. N. Perkins, W. C. Norcross, R. M. Burton, G. D. Wolfley, August Christen, A. Rampenthal and Reeve Burton.

BAIRD & WEST, Detroit.—By-product coke. Represented by Edwin R. Stoughton.

BARTLEY, JONATHAN, CRUCIBLE CO., Trenton, N. J.—All styles of standard crucibles were shown, together with special crucibles for tilting furnaces, as well as retorts, stoppers, nozzles and all foundry supplies manufactured from graphite. Represented by Jonathan Bartley, T. H. Lawton, S. H. Dougherty and Lee T. Ward.

BAYER PATTERN PLATE & MFG. CO., Cleveland.—Composition match-plates, as well as a molding machine of a new type. Represented by Charles W. Brown and Mr. Bayer.

BERKSHIRE MFG. CO., Cleveland.—This exhibit included the Berkshire improved automatic molding machine, a combination hand squeezer and pattern-drawing machine, as well as the Junior squeezer. In addition, numerous styles of pattern plates, aluminum, iron and wooden flasks, a rotary riddle and a sand conveyor were shown. Represented by R. H. York, J. N. Battenfeld and F. C. Battenfeld.

BIRKENSTEIN, S., & SONS, Chicago.—Samples of a complete line of brass founders' alloys, made by this concern, were shown. Represented by J. B. Neiman, E. E. Berliner and Harry Birkenstein.

BROWN SPECIALTY MACHINE RY CO., Chicago.—The Hammer core machine, as well as a core coning machine were shown in operation. Represented by Elmer A. Rich Jr. and John Laycock.

BROWNING, VICTOR R., & CO., Cleveland.—Hoist and trolley for foundry use were exhibited and in addition, a large number of photographs were shown of installations of conveying machinery. Represented by W. D. Browning and H. E. Green.

BUCH'S SONS CO., A., Elizabethtown, Pa.—All of the molding machines shown by this concern were operated and included a portable jar-ramming and squeezer machine, and in addition, a demonstration was made of a special method of mounting patterns for molding machine use. Represented by R. S. Buch and P. J. Potter.

BUCKEYE PRODUCTS CO., Cincinnati.—Parting compounds, brass foundry fluxes, core oils, core compounds and a general line of foundry supplies. Represented by Charles J. Goehringer and Edward H. Leisl.

BURROUGHS ADDING MACHINE CO., Detroit.—Adding and listing machines. Represented by F. H. Dodge, F. S. Wheeler and Ward Gavett.

CALUMET ENGINEERING WORKS, Harvey, Ill.—Tumbling mills, ladles, overhead trolleys and a model of a cupola, built by this concern, were exhibited. Represented by H. W. Schultze, J. T. Krieger and C. A. Dugan.

CANADIAN MACHINERY, Toronto, Can.

CARBORUNDUM CO., Niagara Falls, N. Y.—Carborundum products, such as grinding wheels, sharpening stones, emery cloth and paper, carborundum cloth and paper, fire sand, etc. Represented by George R. Rayner, C. D. Sargent, F. B. Jacobs, H. A. Eaton and O. C. Dobson.

CENTRAL FOUNDRY SUPPLY CO., Columbus.—Complete line of foundry supplies. Represented by J. S. Ball and William Fenton.

CHICAGO PNEUMATIC TOOL CO., Chicago.—Complete line of pneumatic tools, including sand rammers, sand sifters, chipping hammers, electric drills and grinders, hose couplers, etc. This company installed the belt-driven air compressor which furnished the compressed air for the various exhibits.

CLEVELAND WIRE SPRING CO., Cleveland.—Shop furniture, including steel tote boxes, steel foundry barrels, steel kegs, shelving, etc. Represented by J. W. Campbell, C. H. Erickson, A. S. Chave and J. D. Marshall.

CRESCENT MACHINE CO., Leetonia, O.—Round jointer head and pattern shop equipment. Represented by C. G. Wilderson.

CUTLER-HAMMER MFG. CO., Milwaukee.—Lifting magnets and electric controlling devices. Represented by Mr. Ludwig.

DETROIT FOUNDRY SUPPLY CO., Detroit.—Foundry supplies and equipment, including core ovens, brass furnaces, oil burners, glue heaters, roll-over molding machines, shovels, crucibles, snap flasks, etc. An extensive line of platers' supplies was also shown. Represented by Edward J. Woodison, W. B. Howard, W. H. Case, W. H. Fitzpatrick, J. C. Dissette, W. W. Murray, C. D. Yahne and George L. Grimes.

DETROIT HOIST & MACHINE CO., Detroit.—Complete line of pneumatic hoists. Represented by J. C. Fleming and F. B. Fleming.

DETROIT TESTING LABORATORY, Detroit.—Photo-micrographs of metals, combustion and recalescence electric furnaces, as well as charts, giving the results of chemical and physical tests of metals. Represented by W. P. Putnam, J. D. Stoddard and Hugh Lamont.

DIXON, JOSEPH, CRUCIBLE CO., Jersey City, N. J.—Complete line of graphite products, including crucibles, stoppers, nozzles, sleeves, muffles, skimmers, stirrers, retorts, graphite bricks, special crucibles for patent furnaces, foundry facings and motor brushes.

DOGGETT, STANLEY, New York City.—Parting compounds and foundry facings. Represented by Stanley Doggett, William Busser and W. S. Rupert.

FALLS RIVET & MACHINE CO., Cuyahoga Falls, O.—Complete line of core-room equipment, including the Wadsworth improved core-making machine, core cutting-off and coning machine, standard core prints, steel core rack, sand mixing and compounding mill and the new Wadsworth vertical jar-ramming, core-forming machine. Represented by George H. Wadsworth and George White.

FEDERAL FOUNDRY SUPPLY CO., Cleveland.—Two jar-ramming, stripping and roll-over machines, adapted for making automobile parts, were shown in operation. A complete line of foundry supplies, including dry core compounds, stove plate facings, etc., was also displayed. Represented by Ralph Ditty, W. J. Adams and W. R. Beers.

THE FOUNDRY, Cleveland.—The silver loving cups, which were awarded for the best operating and best still exhibits, were shown in this booth.

FOUNDRY NEWS, New York City.

FOUNDRY SPECIALTY CO., Cincinnati.—Parting compounds and brass fluxes. Represented by F. W. Weissman.

GARDNER PRINTING CO., Cleveland.

GOLDSCHMIDT THERMIT CO., New York City.—Demonstrations of the use of thermit were made. Represented by H. S. Mann and J. G. McCarty.

HANNA ENGINEERING WORKS, Chi-

cago.—Rathbone multiple molding machine, electric revolving dumping riddle, electric rocking riddle, pneumatic tripod shakers, pneumatic post shakers, mold dryer, riveters, etc. Represented by James T. Lee.

HAUCK MFG. CO., Brooklyn.—Portable burners and heaters for lighting cupolas, skin drying molds, annealing, etc., kerosene torches, rivet, brazing and blacksmith forges. Represented by Arthur E. Hauck.

HAWLEY DOWN DRAFT FURNACE CO., Chicago.—Complete line of melting furnaces. Represented by Cliff M. Bleyer, Harry Stow, D. J. O'Brien and Frank Rolff.

HERMAN PNEUMATIC MACHINE CO., Pittsburg.—Jar-ramming molding machines, including one equipped with a table 60 inches square, for making large molds, and another with a table 30 x 45 inches, fitted with a roll-over and pattern drawing device. A jar-ramming stripping plate molding machine was also shown, equipped with a table 24 x 30 inches. Represented by Martin L. Heyl, Charles Herman, Alfred Herman, H. T. Frauenheim, Joseph H. Bialas and John J. Lawlor.

HICKMAN, WILLIAMS & CO., Chicago.—Samples of the large number of brands of pig iron sold by this concern were exhibited. Represented by H. E. Pierce, S. E. Frazee, B. P. Williams, E. P. Hettiger, Richmond Nicholas, H. Black, R. B. Miller, John Daker Jr., John U. Byrd, T. L. Powell, L. E. Patton, T. C. Ward, T. A. Arthur, V. L. Hoffman, J. B. Holloway, Day Williams, R. W. Kellow, C. A. Reed and L. H. Miller.

HIGH PRESSURE SAND BLAST CO., New York City.—Kelly sand blast machine. Represented by C. W. McLane and Arthur E. Lee.

HILL & GRIFFITH CO., Cincinnati.—Complete line of foundry supplies and equipment. Part of this booth was also fitted up as a rest room for visiting foundrymen. Represented by J. M. Glass, John Hill and M. Z. Fox.

INGERSOLL-RAND CO., New York City.—Motor-driven, dust proof compressor of the high speed type, pneumatic sand rammers, chipping hammers, drills, motor hoists, etc. Represented by W. H. Armstrong, James Moran, W. A. Armstrong and James L. Kelly.

INTERSTATE SAND CO., Zanesville, O.—Molding sands for iron, steel and brass foundry use. Represented by U. E. Kanavel, E. M. Ayers, L. K. Brown and R. S. Wilson.

IRON AGE, New York City.

KELLY, T. P., & CO., New York City.—This booth was fitted up as rest room for visiting foundrymen. Represented by T. P. Kelly, Edwin R. Wolverton and John S. Crowley.

KILLING'S, E., MOLDING MACHINE WORKS, Davenport, Ia.—Molding machines, including an automatic duplex power squeezer, universal jarring machine, universal roll-over, straight drop molding machine, combination pattern-drawing, rock-over machine for deep draws, stripping plate machine and a pneumatic sand sifter. Represented by Ewald Killing, C. P. Aabye, William White and A. W. Fox.

KROESCHELL BROS. CO., Chicago.—Complete line of Kroeschell-Schwartz gyrating-flame crucible furnaces of the tilting and stationary types, ladle heater, mold dryer, etc. Represented by W. L. Kroeschell and E. H. Schwartz.

McCORMICK, J. S., CO., Pittsburg.—Sand mixer, wire straightener, wire cutter, sand riddle, pneumatic molding machine and a complete line of foundry supplies. Represented by J. S. McCormick, T. E. Malone and S. R. Costley.

MACLEOD, WALTER, & CO., Cincinnati.—Complete line of portable heaters, blacking sprayers and sand blast machines.

METAL DROSS ECONOMY CO., Bristol, Conn.—Skimming device for brass foundry use. Represented by A. L. Haasis and W. H. Carpenter.

METAL INDUSTRY, New York City.

MICHIGAN SMELTING & REFINING CO., Detroit.—Yellow and red brass ingots and sample castings, made from these alloys, as well as solders, babbitt metals and a number of new non-ferrous alloys. Represented by Joseph Sillman, Albert J. Hall, T. R. McNamee, S. R. Gingsburg and H. Levitt.

MIDDLEDITCH, BENJAMIN, Detroit.—Foot and power sprue cutters, tumbling barrel, polishing machine and flasks for use in brass and aluminum foundries. Represented by Benjamin Middleditch, Samuel A. Laffrey and Peter de Vries.

MILLERS' PRODUCTS CO., Chicago.—Foundry flour and core compounds. Represented by C. B. Spaulding and W. M. Wilson.

MONARCH ENGINEERING & MFG. CO., Baltimore.—Complete line of non-ferrous metal melting furnaces, ladle heaters, bolt heating furnaces, blowers, etc. Represented by David R. Steele, H. D. Harvey, W. W. Woodburn, James H. Fowler and James J. Allen.

MUMFORD MOLDING MACHINE CO., New York City.—Molding machines, including a 12-inch plain power squeezer with match-plate and vibrator; 10-inch high trunnion squeezer; 13 x 18-inch power-ramming, split-pattern vibrating machine, plain jolt-ramming machine and other labor saving foundry equipment. Represented by E. H. Mumford, F. W. Hamel and A. J. Goss.

NATIONAL CORE OIL CO., Corning, N. Y.—Core oils and cores made with these oils in the mixtures. Represented by C. H. Cotton, L. C. Allen and P. L. Crandall.

NORTHERN ENGINEERING WORKS, Detroit.—Newten cupola, working model of a traveling crane trolley, overhead tramway and trolley, crane ladles, electric and air hoists, and photographs of electric cranes and miscellaneous foundry equipment. Represented by W. G. Chesebrough, Walter Robinson, E. S. Reid, G. A. True and H. W. Standart.

OBERMAYER, S., CO., Cincinnati.—This booth was fitted up as a rest room and contained no display of either foundry supplies or equipment. Represented by H. F. Frohman, Justus Thorner, S. T. Johnston, F. W. Dodge, Fred J. Brunner, Harry Wessling, William Fitzpatrick, James E. Evans, J. McDevitt and O. Peterson.

OHIO SAND COMPANY, Conneaut, O.—Molding sands for iron, steel and brass foundry use. Represented by F. E. Gordon and Arthur S. Barrows.

OLIVER MACHINERY CO., Grand Rapids, Mich.—Complete line of patternmaking machinery, including a speed lathe, hand jointer, surface table, wood trimmer, surfacer, band sawing machine, wood milling machine, saw benches, etc. Represented by J. W. Oliver, A. N. Spencer, W. Y. Mentzer and J. P. Schmidt.

OSBORN MFG. CO., Cleveland, O.—Molding machines, including plain and rock-over jolt machines, hand roll-over machines, complete line of flask stripping and stripping plate machines, and a general line of foundry supplies, such as wire wheel brushes, riddles, bellows, etc. Represented by H. R. Atwater, F. D. Jacobs, E. T. Doddridge, J. C. Boyton and J. H. Galloway.

PANGBORN, THOMAS W., CO., New York City.—High pressure sand blast systems, sand separating systems, sand driers and air separators. Represented by John C. Pangborn, Harry D. Gates, Jesse J. Bowen, Willis S. Doane, Alfred L. Homans, Raymond F. Smith and Foster J. Hull.

PARKER BROS. CO., LTD., Detroit.—Molding sands for iron, steel and brass foundry use. Represented by W. R. Thompson.

PAXSON, J. W., CO., Philadelphia.—Pattern-drawing molding machines, magnetic separators, overhead tramrails, tripod sifters and a complete line of foundry supplies. Represented by H. M. Bougher, George W. Moore, A. W. Moyer, I. F. Kremer, W. Scott Thomas, W. T. Nicholson and W. Beatty.

T. J. PETERSON CO., Chicago.—This concern exhibited its various grades of core oils. Represented by T. J. Peterson, H. S. Peterson, John Purvis, James Kerr, Joseph Harrison and A. B. Elwes.

PICKANDS, BROWN & CO., Chicago.—By-product coke and samples of pig iron. Represented by B. T. Bacon, George A. T. Long, James A. Galligan and Thomas Glasscot.

PRIDMORE, HENRY E., Chicago.—Molding machines, including four square stand stripping plate machines, one large heavy double shaft stripping plate machine, four rock-over drop machines, one 12 x 18-inch power-ramming rock-over molding machine and one special core molding machine. Represented by Edward A. Pridmore, R. E. Turnbull, D. F. Eagan and W. W. Miller.

Q. M. S. CO., Plainfield, N. J.—Motor-driven steel foundry saws, hand power traveling cranes, trolleys and air hoists. Represented by R. H. Post and F. R. Phillips.

ROBESON PROCESS CO., Au Sable Forks, N. Y.—Liquid core binder. Represented by D. S. Robeson, Henry R. Donald and Martin Pierce.

ROBINSON AUTOMATIC MACHINE CO., Detroit.—One ten-arm automatic polishing machine, specially adapted for polishing flat and oval castings, such as stove plate and similar sections. Represented by C. F. Coda and Charles Mear.

ROCKWELL FURNACE CO., New York City.—Photographs of melting furnaces, built by this concern. Represented by W. S. Quigley and A. L. Stevens.

ROGERS, BROWN & CO., Cincinnati.—The entire back of this booth was covered by a large map, which showed the greater portion of the United States and a part of Canada, giving the location of the blast furnaces in which this company is interested and represents. The blast furnaces were shown by red lights, the company's ten offices by white lights, and the various coke regions by blue lights. Samples of pig iron, made in China, Germany, Scotland, England, Sweden and the dominion of Canada were also shown. Represented by H. B. B. Yergason.

SAND MIXING MACHINE CO., New York City.—Sand mixer for cutting molding sand and for mixing core and facing sand. Represented by V. E. Minich and B. F. Doup.

SELLERS, WM., & CO., INC., Philadelphia.—Centrifugal sand mixing machines and drill grinding machines. Represented by Edward L. Holljes.

SLY, W. W., MFG. CO., Cleveland.—Complete cleaning room equipment in miniature, consisting of round and square exhaust cleaning mill, cinder mill, dust arrester and exhaust fan. Represented by W. W. Sly, W. C. Sly, H. R. Morse and H. J. Norris.

SMITH, J. D., FOUNDRY SUPPLY CO., Cleveland.—Core ovens, brass melting furnaces, sprue cutters, tumbling mills, molding

machines, core sand mixers and a sand blast equipment. Represented by P. G. Smith, J. S. Smith, Joseph Harrison, M. S. Finley and F. A. Coleman.

STANDARD SAND & MACHINE CO., Cleveland.—Sand mixing and sand handling machines. Represented by J. A. Boughton, H. E. Boughton, E. J. Smith and T. J. Morgan.

STERLING WHEELBARROW CO., Milwaukee.—A complete line of rolled steel flasks. Represented by R. G. Smith and H. G. Mindrum.

STEVENS, FREDERIC B., Detroit.—Complete line of foundry and platers' supplies. Represented by Frederic B. Stevens.

TABOR MFG. CO., Philadelphia.—Molding machines, including standard power squeezers, roll-over machines for hand and power operation, shockless jarring machines, combination jarring and roll-over machines and combination jarring and squeezing roll-over machines. Represented by Wilfred Lewis, John T. Ramsden, C. W. Coleman, C. H. Ellis, J. H. Coleman, and the demonstrators were H. W. Impey, Dudley Wilcox and J. Pfender.

UNITED STATES GRAPHITE CO., Saginaw, Mich.—Booth was fitted up as a rest room for visiting foundrymen. Represented by H. C. Woodruff, Frank G. Godard, R. A. Corrigan and J. G. Drought.

WHITEHEAD BROS. CO., Providence, R. I.—Foundry supplies.

WHITING FOUNDRY EQUIPMENT CO., Harvey, Ill.—Photographs of foundry equipment. Represented by C. A. Hardy, P. A. Dratz, R. H: Bourne, C. Hughes, T. S. Hammond and F. A. Rundle.

WISE, J. B., Watertown, N. Y.—Crucible furnaces for melting non-ferrous metals. Represented by J. B. Wise.

OBITUARY.

Lewis Johnson, president of the Johnson Iron Works, Ltd., of New Orleans, La., died recently at his residence in that city, after a long illness.

Frederick W. Sivyer, president of the Northwestern Malleable Iron Co., Milwaukee, died at 3:10 o'clock, Saturday afternoon. He had been seriously ill for several days, his recovery being despaired of.

John C. Campbell, who for the past 15 years was city sales agent for the National Tube Co., at Chicago, died there, May 31, aged 53. He was born in Glasgow, Scotland, and had resided in Chicago for the past 18 years.

Richard Banfield, aged 65, superintendent of the cold roll department of the Follansbee Bros. Co. tin mills, at Follansbee, W. Va., died June 8. Mr. Banfield was born in Wales and had been identified with the industrial plants in the Pittsburg district for a number of years.

Robert H. Boggis, president of the Taylor-Boggis Foundry Co., Cleveland, died Friday, at his home in Cleveland, aged 75. When 17 years old he removed to Cleveland from Geneva, N. Y., where he was born, and worked for several years for the George Worthington Co, but entered the hardware business at Lockhaven, Pa., in 1857. At the solicitation of Harvey Taylor, founder of the Taylor-Boggis company, he returned to Cleveland in 1875 and became a member of the company H. J. Boggis, secretary of the Taylor-Boggis company, is one of his two surviving sons.

Charles H. Upton, vice president of the Union Iron Works and for 58 years a resident of Minneapolis, died May 27, aged 80. He was born in Dixmont, Me., following the trade of machinist at Bangor, Me., and Boston, Mass. He removed to St. Anthony Falls in 1851. After the civil war, he became foreman of the St. Anthony Iron Works, which burned in 1879. He then organized the foundry firm of Lockwood, Upton & Co., which was incorporated in 1893 as the Union Iron Works.

William P. Davis, president of the W. P. Davis Machine Co., Rochester, N. Y., died May 30 at his home in that city after four weeks' illness, aged 60. He was born in Elmira, N. Y., and when 14 years old he entered a machine shop at Auburn. While yet a young man he started machine shops at various small towns and in 1890 he removed his business to Rochester. In 1894 the W. P. Davis Machine Co. was organized with Mr. Davis as president. Three years later the present brick shops were built. His brother, Charles F. Davis, is secretary and treasurer of the company of which W. P. Davis was head.

MACHINERY TO SOUTH AFRICA.

Consul Edwin Gunsaulus reporting from Johannesburg states that for the year ending June 30, 1909, the mines of South Africa bought machinery and machine tools valued at $5,322,081; pipes and pipe fittings valued at $1,623,079; electrical machinery valued at $1,467,030; rails crossing and sleepers valued at $1,013,122 and brass and iron castings valued at $542,677. Consul Gunsaulus states that all these articles are bought through local agencies and that for the United States to get its share of the trade, agencies or local representatives are necessary.

North & Judd Mfg. Co., New Britain, Conn., is building these additions to its plant: Annealing building, malleable iron, 70 x 94 feet; brass foundry, 60 x 106 feet; an office and pattern building, 30 x 94 feet. These additions have been made to take care of the growth of the company's business.

RECORD MONTH

For Steel Plant at Steelton, Pa.—Eastern Pennsylvania Industries.

Harrisburg, Pa., June 13.

The month of May was a banner one for production at the Pennsylvania Steel Co.'s works plant at Steelton, the open-hearth tonnage being greater than ever known before, the total reaching 45,000 tons. The company ran all but one of its open-hearth furnaces and in addition the Bessemer was in full operation for the first time in many months.

The Harrisburg Foundry & Machine Works reports booking a considerable amount of engine orders during the month of May, San Francisco and the southern states being represented in the new business received.

The Jackson Mfg. Co., of Harrisburg, has been making a heavy tonnage the last few months. Large eastern shipments are being made.

Lebanon Valley furnace, at Lebanon, has been blown out. The Lackawanna Iron & Steel Co. is shipping considerable iron from its yards in West Lebanon and Cornwall.

BUYS DELAWARE STEEL FOUNDRY.

The Tropenas Steel Co., of Newcastle, Del., has sold its steel casting foundry to the Edgar Allen American Manganese Steel Co., of Chicago, which recently purchased the manganese steel plant of the American Brake Shoe Co., Chicago Heights, in Chicago. The purchase price is withheld. The newcomers will enlarge the Newcastle plant, increasing the force of workmen from 300 to 1,200.

The plant at Chicago Heights will be trebled. The capital of the new company will be $3,500,000.

J. C. Ward, one of the directors of the Edgar Allen Co., is also a director of the Edgar Allen Co., Ltd., of Sheffield, England, one of the largest steel manufacturing companies in the world. Rudolph Ortman, of Chicago, president of the Edgar Allen Co., is a leading official of several American steel companies. He took a prominent part in the purchase of the Tropenas plant. Other directors of the Edgar Allen American company are Mr. Ortman, J. B. Terbell, Otis H. Cutler and Joseph G. Gallagher.

BUILDING FIGURES.

Reports of building operations for May from 94 cities show the cost of new construction to have been $74,080,915, against $86,828,912 in April, a loss of 14.6 per cent.

ACTIVE WORK

In Developing the Fairmont Region —New Mines Located.

Baltimore, June 13.

The development of the Fairmont region is being pushed vigorously. In addition to the new property opened near Worthington, W. Va., as announced in The Iron Trade Review last week, the Keystone Coal & Coke Co. has located two new mines to develop the company's holdings recently purchased near Fairmont from the New England Gas Co., of Boston. The Keystone company has 3,500 acres of the best Pittsburg vein of coal to be found in the low sulphur basin. These mines will be shafts with a daily capacity of 3,500 tons each. The firm of Heyl & Patterson, of Pittsburg, will sink these shafts. Other operators are preparing to greatly increase their output in the region.

The condition that will limit the production in the field for a time will be the inadequacy of the railroad facilities to handle the vast tonnage that can be produced there. The Baltimore & Ohio Railroad is making efforts to capture a large part of this increase, but it will have to keep hustling to keep abreast of the production. Twenty-five miles of yard track is being built at Grafton, according to announcement at the railroad headquarters here, and additional tracks are going in over the Allegheny mountains. The Pittsburg & Lake Erie and the Pennsylvania have working agreements with the B. & O. for the section, and all will share in the development of what promises to be one of the richest coal fields of the world. Baltimore draws largely from the region and is vitally interested in its development.

AMERICAN BRAKE SHOE STOCK PUT ON EXCHANGE.

Shares of stock of the American Brake Shoe & Foundry Co. to the amount of $10,000,000 have been admitted to dealings upon the New York Stock Exchange. The stockholders at a recent meeting increased the capital stock of this company to $10,000,000, consisting of $5,000,000 preferred and $5,000,000 common, and under this action there was issued $1,000,000 preferred and $1,000,000 additional common stock. In its application to the New York Stock Exchange for list, the company submitted the following income account for the six months ended March 31, 1910.

Income—Gross income from all sources, $2,654,581; expenses, operating, etc., $2,086,219; balance of income, $568,361; interest on bonds, $20,800; net profits for six months, $547,561. Dividends paid—Preferred, $105,000; common, 1¼ per cent, $63,750; extra dividend common, ½ to 1 per cent, $13,000; balance of profits for six months, $365,811; surplus on books Sept. 30, 1909, $2,021,679; surplus on books March 31, 1910, $2,387,491.

The governors of the stock exchange in accepting the stock for listing have made the following report upon the properties of the company:

Upon its organization, the company purchased the brake shoe patents of the American Brake Shoe Co. and of the Streeter Brake Shoe Co., both Illinois corporations; of the Corning Brake Shoe Co., a corporation of New York; and the brake shoe patents and the manufacturing plants in fee of the following named companies: Ramapo Foundry Co. of New Jersey, at Mahwah, N. J.; the Sargent Co. of Illinois, at Chicago Heights, Ill.; Corning Iron Works of New York, at Corning, N. Y.; Ross-Meehan Foundry Co. of Tennessee, at Chattanooga, Tenn.; Lappin Brake Shoe Co. of New Jersey, at Bloomfield, N. J.; also an iron foundry (leased) at Buffalo, N. Y.

Since the formation of the company, other plants and properties have been purchased and the original plant at Chattanooga, Tenn., and the plant at Corning, N. Y., have been sold. The plants at the present time owned in fee are as follows:

Mahwah, N. J., 50 acres; Chicago Heights, Ill., 13 acres; Chattanooga, Tenn., 8 acres; Uniontown, Pa., 5½ acres; Minneapolis, Minn., 2 acres; Burnside, Ill., 9½ acres; Melrose Park, Ill., 3 acres.

Total annual output, 175,000 tons.

The properties leased and operated are as follows:

Norwood, Mass., lease expires April 1, 1914; Buffalo, N. Y., lease expires Dec. 31, 1911; Aurora, Ill., lease expires Nov. 1, 1910.

NEW SCRAP YARD.

The Racine Iron & Metal Co., Racine, Wis., is just completing the laying out and enclosing of its new scrap yard, which will be one of the best equipped of any in the country. A board fence about 20 feet high completely surrounds the yard, on three sides of which, in addition, ample sheds have been built so that the work of sorting out the scrap goes on in any kind of weather. This yard is also equipped with the new oxy-hydric process for cutting metal, which is a decided innovation, as it is the only one in the west so situated, if not in the entire country. A spur from the C. & N. W. railway runs into the yard, and it is the expectation later to install a lifting magnet and other labor-saving devices. A separate building has been built to take care of brass and copper scrap.

IRON WORKERS STRIKE

In Los Angeles and Closed Shop Conditions are Demanded.

Los Angeles, June 6.

Los Angeles and other Pacific coast towns are just now getting a taste of what San Francisco has been suffering for years at the hands of the trades unions, guided and goaded on by professional agitators and trouble breeders. The iron workers of Los Angeles were called out by organizers and business agents of the city and some coming from eastern cities. The workmen employed in kindred trades soon followed the machinists, molders and some of the other unions. The building mechanics also threaten to strike, and are determined to convert Los Angeles to a closed shop place. The employers of the southern city have thus far managed to maintain the open shop system, and the town has flourished. The Los Angeles building permits for May exceed those granted in San Francisco by $200,000. This is very significant considering that San Francisco is still engaged in rebuilding what the fire destroyed, while Los Angeles continues on its upward course of expansion, though it lacks some of the advantages enjoyed by San Francisco.

The result of the struggle which is now being waged in Los Angeles between master and man is of the utmost importance to the future prosperity of the Pacific coast. Should the employers lose their grip on the situation, Los Angeles, San Diego, Portland, Seattle and every coast town will share the fate San Francisco has experienced and from which it is now suffering.

NEW TIN HOUSE COMPLETED AT MARIETTA.

The Union Sheet & Tin Plate Co., with plants at Hazelton, Pa., and Marietta, O., and general offices in the Farmers' National Bank building, Pittsburg, has completed a new tin house at its Marietta works which is equipped with the latest tin pots and machinery for producing high-grade tin and terne plate. Its Marietta rolling mills are in successful operation, and it is quoting prices for prompt delivery on tin plate, terne plate, and tin mill products and special finished sheets. The company is offering a limited tonnage for delivery during June, July and August, and a larger tonnage for delivery through the remainder of the year.

The Maryland Steel Co. lighted C furnace at Sparrows Point, Md., May 20.

IN THE MACHINERY FIELD

NEW YORK.

Sentiment in Machinery Market Improves—Auto Shops Buy Tools.

Office of THE IRON TRADE REVIEW.
1115 West Street Bldg., June 14.

A more cheerful note has been sounded in the eastern machinery market during the past week by the re-assuring developments in the railroad freight rate controversy following closely upon and considerably modifying the unfavorable sentiment which arose with the original announcements from Washington. There has been increased evidence in the week that the several large expenditures for machinery by the railroads which have been under consideration will not be interfered with by the more uncertain feeling and that these will probably be placed in due season. Only detail arrangements appear to remain before the placing of contracts against the heavy New York Central and Delaware, Lackawanna & Western lists which have been pending for some time. In the New York Central matter, the original requisition for this machinery has been preserved and the settlement of some questions of detail relative to a change in the size and type of the motors at first specified, as the tools are to be motor-driven, will probably soon be followed by the placing of the order. The Delaware, Lackawanna & Western is now considering the prices recently submitted.

Business in machine tools, generally speaking, is holding up fairly well with evidence of improvement in some lines and recession in others, but the average volume is well sustained. Although probably in a measure less active, the demand from the automobile manufacturers continues good, and it remains the leading feature of the machine tool market as it has been for sometime past. Some recent large orders placed by these interests are to be noted. The Brightwood Motor Car Co., Springfield, Mass., has lately bought about $100,000 worth of new plant equipment which is one of the most important contracts to be placed recently in the east. This order was quietly distributed among different builders and sellers without general inquiry. The Locomobile Co. has made some small additional purchases for Bridgeport, Conn., and the Maxwell-Briscoe Motor Car Co. also bought a few more tools the past week. Other automobile plants are buying almost weekly. In milling machines where the evidence of the automobile trade is most marked, there is a slightly improved condition of deliveries, but some builders still continue unable to make shipment before November or later dates and stock and second-hand machines may be sold without effort. Lathes are experiencing a good call, but the demand for planers and shapers is not so brisk as the condition of the automobile industry has little effect upon these lines and the metal-working shops which employ this class of machine tools most freely do not appear so active with extensions or replacements.

In cranes a better inquiry is reported after the market has been rather lagging for several weeks, and this is of a very general nature. Small pneumatic tools are in strong demand and manufacturers are having trouble to make desired deliveries as buyers' stocks have been allowed to run low. Builders of iron and steel works equipment are not booking as much new business as they have been in the past. The seasonable demand for machinery for highway and other forms of outdoor construction is good.

The Chicago Pneumatic Tool Co., 50 Church street, New York City, reports that there is plenty of business being entered in its line as has been the case for some time, and that its chief concern is the satisfaction of the demands of its customers for desired deliveries.

The Universal Machine Screw Co., Hartford, Conn., is extending its facilities by the construction of a new one-story building 117 x 200 feet, with shipping room, boiler room, stock room, etc., and a separate wing, making the entire front width about 165 feet. The floor will be concrete and the roof of saw-tooth construction. The company expects to move into the new plant in about five weeks. It will require considerable equipment for the new shop, but has not yet definitely made its selections. The company manufactures universal five-spindle automatic screw machines and standard special screw machine products made to order from steel or brass.

About $75,000 to $100,000 will be expended for power, crushing and quarrying equipment for the new plant to be built on Chappaqua mountain, between Chappaqua and Mount Kisco upon the Harlem division of the New York Central railroad, by the New Castle Stone Co., of 17 W. 42d street, New York City. The plant will have a capacity of 1,200 tons daily, a large part of which will go to roadbed requirements for the New York Central and as concrete materials for construction work in the electric zone of that system. The New Castle Stone Co. is a new corporation, capitalized at $250,000, and of which A. B. Clark, of New York City, is president.

The Shephard Crane & Hoist Co., Montour Falls, N. Y., has completed a small addition to its machine shop and to its general floor space which, by the installation of considerable new machine tool equipment, gives it nearly twice its former capacity. It is also building a new power house in which a new boiler has been installed, but no other equipment will be added at this time. The company reports a very favorable condition of trade in its line of product.

It is reported that the officials of the state of New York have settled upon a site upon Bear mountain along the Hudson river 60 miles from New York for the new state prison in which several of the present penal institutions of this state are to be combined. The construction of the new prison will provide a demand for considerable power and other lines of equipment.

The Philadelphia Electric Co., Philadelphia, has awarded the contract to John R. Wiggins & Co., Philadelphia, for the construction of a storage plant on Ranstead street, between 20th and 21st streets, in that city, to cost $75,000. The plans provide for a one-story brick and concrete structure, 90 x 150 feet.

The award the past week of the contract for the construction of the new foundry of the General Electric Co., at Erie, Pa., inaugurates the definite work upon the building of the enormous plant of the company at that location, details of which have been previously announced. The construction of numerous other buildings for the manufacturing departments other than the foundry plant will follow in the order of their development as the ultimate plans call for an elaborate layout. Enormous expenditures for equipment are to be made in connection with this project and some inquiries have already been put out, including a number of cranes for the foundry.

It is announced that the American Power & Light Co., 71 Broadway, New York City, has acquired the holdings of the Northwest Corporation of Philadelphia, which embraces electric light, gas and street railway plants in eastern Oregon and Washington. The deal includes gas properties in Walla Walla and North Yakima, Wash.; Lewiston, Idaho, and Pendleton, Ore.; electric properties in Walla Walla, Pendleton and Athena, operated from a hydro-electric power station on the Walla Walla river near Milton, Ore., together with the local trolley system in Walla Walla and an inter-urban line running from Walla Walla to Milton. The Strahorn properties in North Wykima and along the valley of the Columbia and Wykima rivers down to Pasco, and including electric light and power plants, together with water systems in North Yakima, Pasco and Kennewick are also understood to have acquired by the American Power & Light Co. The Yakima properties have both hydro-electric and steam power generating stations, including a large hydro-electric plant on the Natches river of some 7,000 to 8,000 horsepower. The Yakima valley system is now being connected with Walla Walla by a 45-mile high tension transmission line, which will make all the various steam and water power plants, aggregating about 15,000 horsepower, available for interchange of service.

Plans are under way for the expenditure of a large sum by the Utah Copper Co., 165 Broadway, New York City in the equipping and building of 17 miles of railroad from the company's mines at Bingham, Utah to Garfield, that state. It is expected that announcement will be made soon of a

$2,000,000 to $3,000,000 bond issue by the Utah company, to finance the plans in view.

The Wellman-Seaver-Morgan Co., 50 Church street, New York City reports that a fair aggregate of business is current for iron and steel works machinery but that inquiries for the extensions, replacements and equipment of plants is not as active as it has been.

New orders for motor road rollers, well-drilling machinery and other road construction equipment are being placed quite freely with the Austin Mfg. Co., 50 Church street, New York City and this company states it is quite well satisfied with trade conditions in its line.

The Westinghouse-Church-Kerr Co., 10 Bridge street, New York, is investigating through the mid-Atlantic section in the hopes of securing a suitable site on which it will erect a plant for the manufacture of iron castings, to employ 1,000 men.

PITTSBURG.

Railroads Still Holding up Their Lists —Considerable Estimating Being Done and Prospects Are Bright.

Office of THE IRON TRADE REVIEW,
510 Park Building, June 14.

There is a fair volume of new business being booked, although machinery makers are not entirely satisfied with the showing made so far this month. The railroads are still holding back orders for shop machinery and all kinds of supplies and are confining their purchases to small lots for present needs. However, the initial lines have prepared estimates on an unusually large amount of machinery and tools on which it is expected that bids will be invited within the next month or so. There has been no let-up in estimating on new projects which will require heavy expenditures for machinery of all kinds, and it is generally believed that awards will be made later in the year for a large portion of this work. Owing to the close competition during the last month or so comparatively low prices have been quoted.

All of the large plants in the western Pennsylvania field continue to operate full time and some makers are having a great deal of difficulty in getting enough men to run their plants day and night. A few plants in this section are now in position to offer fairly prompt deliveries and this has resulted in some of the prospective builders making final preparations for starting work.

The outlook for the remainder of the year is regarded as being most encouraging, even though awards are made for only a small portion of the work on which estimates have been prepared and on which estimates are now being made. Some plants will not be able to take on additional work for delivery prior to January 1.

H. T. Porter, chief engineer of the Bessemer & Lake Erie Railroad Co., a subsidiary of the United States Steel Corporation, is receiving estimates for the erection of a new machine shop and engine roundhouse to be built at Greenville, Pa., where the company's principal shops are located. The buildings will be of reinforced concrete construction.

Several coal and coke companies operating in the West Virginia field are in the market for machinery for new mining plants and existing plants where production is to be increased. The Brady Coal Co., which was chartered recently, announces that its new plant will be located at Mabie, Randolph county, W. Va.

The Jeansville Iron Works Co., Hazelton, Pa., has received a contract through its Pittsburg office, for the installation of four triple expansion pumping engines in the western watering stations of the American Water Works & Guarantee Co.

The Cambria Steel Co., Johnstown, Pa., has placed a contract with the American Ship Windlass Co., Providence, R. I., for three 7-retort stokers.

More than $50,000 will be expended by the Mt. Hope Coke Co. for improvements to its plant at Lynn station on the Pittsburg, Virginia & Charleston railroad. The company now has 75 Mitchell ovens drawn by the pusher system and the addition of 75 ovens will be of the same design.

The W. J. Rainey interests will enter the market in the near future for machinery and equipment to be used in the extension of the holdings adjoining the Hecla No. 1 plant of the H. C. Frick Coke Co., near Mt. Pleasant, Pa., which includes the erection of 200 additional ovens.

The Consolidated Coke Co., Fairmont, W. Va., is preparing plans to open an additional mine near Worthington, W. Va., to have a daily capacity of 2,000 tons. The installation of the new plant, including a new bridge across the West Fork river, a steel tipple, mining houses and mining equipment will cost $400,000. It is expected that bids for machinery will be invited shortly.

President B. F. Bush, of the Western Maryland railroad, during the week inspected the route of the proposed new railroad from Connellsville, Pa., to Cumberland, Md., with a view of selecting a site for new yards and terminals in the Connellsville region. It is not likely that bids for shop machinery, etc., will be invited for two or three months at least.

A. W. Krause, formerly secretary and treasurer, and Charles A. Lytle, formerly manager of the Petroleum Iron Co. have resigned and are interested in the Frazer Lock Bar Pipe Co., which was recently organized in New York and which will build a plant in the Sharon, Pa. district.

The May business of the Garland Corporation showed the largest increase yet reported in 1910, as compared with the corresponding period of last year. April sales were 25.31 per cent above those of the same month last year, while March reported a gain of 36.15 per cent. The remarkable increase in sales of automobiles is one source of active demand for nuts, bolts and rivets, of which the Garland Nut & Rivet Co. is a manufacturer.

The Pennsylvania lines west of Pittsburg have been experimenting with a locomotive mechanical stoker for some time and announce that additional locomotives will be equipped shortly. Up to this time but one engine has been equipped and with this the experimenting has been done. The work has reached such a stage in its development that the company feels warranted in extending the service. Twenty-five additional engines are to be equipped with the stoker for trial service. Of these, 10 will be assigned to the lines east of Pittsburg and 15 to the lines west of this city. Meanwhile, an engine will be put in the testing plant at Altoona for the determination of the relative fuel economy of the stoker.

A contract has been awarded to George T. Ladd, Pittsburg, by the Republic Iron & Steel Co. for a 32 x 48 Bass Corliss horizontal engine with complete rope drive to be installed at its Moline, Ill. plant.

The Board of Trade, of Greenville, Pa., has secured a concern from Jamestown, N. Y., to be known as the Greenville Metal Construction Co. It has a capitalization of $600,000 and will make automobile parts and equipment for steel passenger coaches.

It is reported that the National Tool Works, Wheeling, W. Va., will be improved and added to at an estimated expenditure of $5,000,000. These improvements will give work for from 4,000 to 5,000 men.

About $300,000 is to be expended by the Newcastle Electric Lighting Co., of Newcastle, Pa., in its improvements to its lighting system this year. J. A. Toler is chief engineer.

St. Louis capitalists, represented by N. Sager, have proposed to build a new city hall for Pittsburg, at a cost of not less than $3,000,000. They propose to erect a 23-story building as market, office building and city hall combined, on the site now occupied by the present market house. They will lease the site from the city for 99 years and if the project succeeds the building will cost in the neighborhood of $5,000,000. The offer is made owing to the city being unable to furnish the money for the necessary improvements on account of pressing financial needs.

MILWAUKEE.

Buildings Planned Here Will Boom Business—Prospects Good and Inquiries Numerous.

June 14.

Several new plants and additions to existing ones which are to be built in Milwaukee and vicinity should open up a field for the sale of considerable machinery and machine tools in the near future. Several of the engine building plants and foundries around Milwaukee are adding to their equipment to enable them to care for the business actually closed or in prospect and the prospects for a good summer business are very bright at present.

The Wisconsin Motor Mfg. Co., of North Milwaukee, and the Milwaukee Machine Tool Co., Thirteenth and Lloyd streets, will locate in West Allis, where they have purchased property and will erect new plants. The Wisconsin Motor Mfg. Co. will erect a fireproof

shop building 112 x 288 feet, a power plant 50 x 50 feet and an office building 50 x 40 feet, at an expenditure of about $100,000.

The West Allis plant of the Milwaukee Stamping Co. now being erected to replace the plant recently destroyed by fire, will be completed about July 1. The building is 60 x 240 feet.

Allis-Chalmers Co. has recently received a large order from the Schwager-Nettleton Mills at Seattle, Wash., for the following equipment: one saw mill, band type; 24 induction motors, 200 to 5 horsepower; a 750 kilowatt volt ampere generator, a 35 kilowatt exciter, two 15 kilowatt volt ampere transformers and a switchboard.

The new foundry being built by the Racine Foundry Co., at Racine, Wis., is rapidly nearing completion. Work is being rushed with all possible speed because the present quarters are inadequate, it being necessary to constantly work overtime to keep up with the business.

The Standard Foundry Co., of Racine, Wis., will enter the automobile part field and is erecting a large plant to take care of this end of the business. The building will be 30 x 100 feet in size and will be constructed of brick and steel.

Work on the new foundry being erected by the Racine Brass & Aluminum Co. is nearing completion and it is expected that the building will be ready for occupancy within a month.

J. C. Hensen of Chippewa Falls, Wis., is preparing to erect a large factory building to be used in the manufacture of the newly invented keyless locks. The building will be 60 x 100 feet in size and two stories high.

The F. J. Greene Engineering Works, of Neenah, Wis., is rapidly enlarging its department for the manufacture of book stitchers. The concern turns out a stitcher of its own invention.

P. S. Peterson, of Janesville, Wis., is having plans prepared for a factory building to be erected for the manufacture of hardware specialties.

The Fairbanks-Morse Co. is planning the erection of a brass foundry 70 x 175 feet and a cleaning room 70 x 200 feet at its Beloit, Wis., plant.

The Phoenix Mfg. Co., of Eau Claire, Wis., manufacturer of saw mill machinery, is erecting two large steel frame and brick additions to its plant.

The city of Waukesha is preparing to issue bonds to the extent of $3,500 to cover the expense of building a new steel bridge over the river at Broadway.

Allis-Chalmers Co. is installing the machinery in its newly completed blacksmith shop. The steam hammer to be used here is claimed to be the largest in the world.

The Milwaukee Bronze Casting Co. is about to enlarge its plant.

The Standard Foundry Co., Racine, Wis., is building an addition, to be used as a core room.

The National Brake & Electric Co. is about to build a $50,000 addition to its plant.

C. W. Hicks, Sutherland, Fla., wants prices on lathes, shaper, drill press, milling machine and other tools for automobile repair shops.

CHICAGO.

Business Picking Up a Little—Automobile Manufacturers Buying Well.

Office of THE IRON TRADE REVIEW
1328 Monadnock Block, June 14.

The early part of June has seen an improvement in the business of a number of machinery houses in Chicago, but railroad buying is still of a hesitating character. This source of business for machinery makers and dealers has been affected probably more than any other by the recent threatened action of the national government in the matter of the proposed advance in freight rates. While a better tone is seen in general business since the understanding was reached between the administration and the heads of the large railroads, the roads themselves are still a little bit backward in entering upon a general buying movement and the machinery lists are still held up. Buying on the part of automobile manufacturers is fair and some very good sales were made during the past week by Chicago houses to this latter industry. The American Bridge Co. has bought a portion of its equipment for the new plant it is building at Gary and the balance of the equipment is to be purchased in a short time. The pressure on manufacturers of high grade tools has lessened very slightly, if any, and dealers are still very much in arrears. Makers of steam pumps find themselves able to catch up a little on their orders and are even anticipating the replenishing of stocks in salesrooms which have been practically wiped out for a number of months.

Jos. T. Ryerson & Son recently closed with two more railroads for flue shop equipment. One outfit is for the Proctor, Minn., shops of the Duluth, Missabe & Northern, and the other for the Los Angeles shops of the San Pedro, Los Angeles & Salt Lake.

The Canadian Northern Railway is in the market for a small list of tools. The purchasing agent's office is at Winnipeg, Man. The list follows:

One 6-foot radial drill.
Three 30-inch upright drill presses.
One 250-ton 42-inch car wheel hydraulic press.
One 24-inch by 12-foot double back geared engine lathe.
One 30-inch by 14-foot double back geared engine lathe.
One 30-inch turret head vertical boring mill.
Three 10-inch screw cutting bolt lathes.
One Rockover grate molding machine.
One power hack saw.
Three emery wheel stands.
One oil flanging furnace for handling boiler plates.
One 14-inch upright slotting machine.
One 18-inch brass finishers' lathe.
One 42-inch car wheel boring machine.
One 36-inch by 36-inch by 10-foot double head iron planer.
One punch and shears.
One 800 pound steam hammer.
One 1-inch to 4-inch pipe threading machine.
One set of plate rolls.
One 24-inch by 12-foot engine lathe.
One 24-inch upright iron shaper.
One 24-inch by 36-inch by 14-foot gas engine lathe.

The Justrite Mfg. Co., manufacturer of hospital receptacles, oily waste cans, garbage cans, etc., formerly known as the Justrite Co., has increased its capital from $15,000 to $50,000 and moved from 218 Lake street to 338 South Jefferson street, Chicago, where it will be equipped to manufacture all kinds of dies, tools and sheet metal work in addition to its former line.

The United States Packing Co. recently closed a contract with the Chamber of Commerce, of Wichita Falls, Tex., for the location of a packing plant, work on which is to be begun immediately. The plant will cost in the neighborhood of $400,000 and will employ over 200 men.

The Chicago & Alton Railroad has completed plans for improvements in Chicago which will involve the expenditure of about $1,000,000. It will build terminal warehouses and an office building at 2 Van Buren street on land recently acquired. W. D. Taylor is chief engineer.

The Chicago, Burlington & Quincy Railroad has purchased 100 acres of land near Beardstown and is contemplating an expenditure of 100,000 for the construction of a new yard and making other changes and improvements.

The Wisconsin Engine Co., of Corliss, Wis., has appointed Geo. B. Foster, Chicago sales manager for the company with offices in the Fisher building, Chicago. He will represent the company in the Chicago district.

The Concordia Land & Lumber Co., 502 Pullman building, Chicago, wants prices on rails.

The Chicago - Racine Aluminum, Brass & Iron Works, of 224 W. Huron street, Chicago, which recently was incorporated to manufacture aluminum, brass, bronze, iron and steel castings, advises that in addition to its Chicago factory, where it will handle all small work, it also has special connections in Racine, Wis., to take care of large work, so that it is in shape to manufacture complete machines of almost any magnitude. The president and general manager is George B. Vance, for nine years assistant manager of the Gates Iron Works of Chicago, and recently president and manager of the Chicago Steel & Brass Works, of this city. The superintendent is Wm. J. Casey, formerly manager of the General Screw Co., of Chicago, and later superintendent of the Chicago Steel & Brass Works.

The Illinois Malleable Iron Co., Chicago, has purchased a site adjoining its present plant, on which it will erect considerable additions in the near future.

The Cleveland Twist Drill Co. has moved its Chicago branch to 9 Jefferson street, where it has greatly improved facilities for the prompt handling of business.

The Northern Iron Works, Virginia, Minn., has purchased the Mesabi Iron Works Co. plant. Equipment is being purchased and operations will begin shortly. Wm. McKenzie is president and Vernon Keech manager of the company.

CLEVELAND.

Quiet Week in Cleveland—Cuyahoga County Building List of Interest.

Office of THE IRON TRADE REVIEW.
Penton Bldg., Chestnut and E. 12th, June 14.

Business amongst machinery men in Cleveland for the week has been generally quiet and few firms have many orders of consequence to report. The equipment for the power plant for the Cuyahoga county building will be of interest, as it calls for several machine tools. Many machinery men are of the opinion that the present dullness in the market is due to the usual let-up for the summer, which comes about this time of year. The automobile firms are still holding up on their specifications and are not buying either steel or tools in any quantity.

The Waterbury-Farrell Foundry & Machine Co. reports business for the past week as quiet, with the exception of orders for bolt machines, of which 11 were sold. The company, however, considers the prospects for the future as good.

The Cleveland Steel Tool Co. will move into its new plant July 1.

The Erie Auto Parts Co., Erie, Pa., a recently organized concern, are making a new universal joint, which is said to be a distinct departure from anything now on the market.

The Halcomb Steel Co. reports conditions with it as being much the same as last week. The business closed was small, but the prospects for the future are good, and it anticipates that the automobile firms will soon release their specifications for next year's stock.

The Westinghouse Machine Co. reports business as being highly satisfactory and leaving nothing to be desired, and believes there will be no let-up in the near future. Business has been as good as at any time last year with the addition of several nice orders from the steel companies. At a branch managers' meeting, recently held in Pittsburg, all branch managers of the company expressed themselves as being optimistic regarding the prospects for the year, and many of them as being of the opinion that their sales would double those of last year.

The county building commission of Cuyahoga county will receive bids until 2 p. m. June 29, for the construction of a power plant and the installation of the following equipment: Four 350-horsepower water tube boilers with superheaters, one 26 and 48-inch x 10-foot lathe, one 14-inch engine lathe, one 25-inch upright drill, one 13-inch sensitive drill, one 24-inch back-geared crank shaper, one pipe-cutting and threading machine, one 10-horsepower motor for machine shop, two engines for direct connection to generators, two direct connected 500-kilowatt 3-wire, double voltage direct current generators, one 100-kilowatt similar generator, two 10 x 6 x 12-inch boiler feed pumps, one air compressor, one 10-ton electric traveling crane, one feed water heater, one direct connected, motor-driven air compressor, piping, etc. Also for the construction of a tunnel and the installation of steam pipes and electric cables connecting the power plant with the courthouse building. It will also receive bids on coal and ash-handling machinery, etc. Copies of specifications can be obtained on deposit of $25. John J. Boyle is secretary pro tem.

The Aluminum Casting Co. has bought the plant of the Manitowac Aluminum Foundry Co., Manitowoc, Wis., which was organized 10 years ago. Conrad Wirra, president of the Manitowoc company, will take charge of the Manitowoc plant as state representative of the Aluminum Casting Co.

The B. & M. Construction Co., 1001 Schofield building, has been awarded a contract for the construction of the 26-mile line of the Alliance & Akron Short Line Railway Co., between Alliance and Akron. L. C. Marble, Columbus, is the chief engineer of the road.

The Union Rolling Mill Co. is about to close contracts for the erection of a new mill at its present location. The building, which will be of steel frame with sheet steel covering, will measure 325 x 70 feet and will contain a 9-inch Belgian guide mill and two heating furnaces. Construction work will be started at once, and it is expected that the plant will be in operation by June 1, 1911. The company is not buying any new equipment, but is re-constructing and modernizing its present mill and furnaces.

The Board of Trustees of the Columbus State Hospital will receive bids until noon June 23 for furnishing material and labor and installation of new boilers and piping at the state hospital. Chas. F. Gilliam, M. D., is secretary of the board.

The Board of Trustees of the Girls' Industrial Home, Delaware, O., will receive bids until June 27 for completing the lighting and heating system. The specifications call for two additional engines and generators, reinforced concrete coal storage pocket, steam heating conduits, underground couplings, wiring lamps and fixtures for 12 buildings, at a cost of $70,000.

The contract for the construction of the $500,000 plant for the Firestone Tire & Rubber Co., of Akron, O., has been awarded to the Geo. W. Carmichael Co.

The Standard Machinery & Equipment Co., Electric building, is in the market for second-hand direct connected power units of from 50 to 300 kilowatts, 250 volts.

The Dunlap Engineering Co., of Columbus, O., formerly the Columbus Pneumatic Tool Co., is erecting an addition to its plant.

The Reliance Electric Engineering Co. announces that from now on its armature shifting type of variable speed motor will be known as the Reliance adjustable speed motor instead of the Lincoln variable speed motor, as formerly.

In connection with the purchase of the Salisbury & Spencer Railway and Lighting properties at Salisbury, N. C., it is stated that the Piedmont Railway Co., the new owner, will make extensive improvements to the gas plant, extending mains and otherwise enlarging it.

BUFFALO.

Business Slightly Better But Still Dull. —Inquiries Few and Prospects Lacking.

Office of THE IRON TRADE REVIEW.
932 Ellicott Square, June 14.

Business in machinery of almost all kinds has continued dull during the past week although a slight improvement over the week preceding has been noted. Very few inquiries for heavy machinery have been reported, and there is not much talk of plants increasing their power immediately, although some will do so before the end of the year. Some electrical equipment has been placed, and other contracts will probably be closed next week.

Interested parties from Buffalo have been in Washington conferring with Representative Alexander, of Buffalo, concerning the drafting of a bill to be introduced in the House before long giving industries on the American side of the Niagara river power to increase the amount of water used for power purposes. Under the present treaty with Canada the maximum is 20,000 cubic feet per second, but the users say that they have in reality been limited to 16,600 cubic feet by the Burton act. It is understood that the proposed bill will permit the increase of 4,400 feet per second. There is little hope that the bill will pass at this time, the main object being to get the legislation under way.

The Conant-Bryant Power Co., Buffalo, has taken the necessary steps to issue stock to the amount of $25,000. The proceeds will be used to purchase an electrical plant and power house in the village of Wilson, where the company holds a franchise.

The Dahlstrom Door Co., Jamestown, has decided to increase its capital stock from $150,000 to $1,000,000.

The Ontario Power Co., Niagara Falls, Ont., has made application to the city of St. Catharines, Ont., for permission to pole the streets and distribute power in opposition to the Cataract Power Co., which at present is the only company distributing power in the city.

The Public Service Commission has authorized the Fulton County Gas & Electric Co. to issue three year, six per cent gold notes for $99,000, the proceeds to be used for the construction of a transmission line from the power station of the Mohawk Hydro Electric Co., in Ephratheh, to the station of the Fulton County Gas & Electric Co., at Gloversville.

Formal announcement has been made that the Hydraulic Power Co., Niaagra Falls Hydraulic Power & Mfg. Co. The Falls Hydrolic Power & Mfg. Co. The former company owned all the capital stock of the latter.

The Boston & Albany railroad has asked the Public Service Commission, Second district, for permission to issue $2,000,000 of 25-year 4 per cent improvement bonds of 1910. The New York Central has asked permission to guarantee the bonds pursuant to the terms of its lease. Among the amounts to be spent on improvements are the following: Grand Junction railroad, third

tracking and additional main tracks, $168,000; East Cambridge, developing delivery yard, $50,000; Chelsea, new freight house, $6,500; Worcester, eliminating grade crossings and erecting new passenger station, $400,000; four-tracking layout South Worcester, $315,000; signals and interlocking, $331,000; bridge renewals, $250,000; third tracking and additional main tracks connecting third track between East Greenbush and Rensselaer, $125,000; passing tracks and sidings, $49,000; engine facilities, $45,200.

On June 27 the taxpayers of Welland, Ont., will vote on the question of granting a franchise for the contraction of a street railway system to a company which is being organized for the purpose. C. J. Laughlin is trustee for the company.

The New York Central is planning to build a steel bridge at Dey street, in the village of Seneca Falls, replacing a stone archway. The road is also considering the advisability of building a water tower.

The M. Myrtle Buck Mfg. Co., electrical supplies, Machias, Cattaraugus county, N. Y., has been incorporated for $10,000. Directors: M. Myrtle Buck, Ivy E. Buck, Franklinville, and Asher B. Emer, Buffalo.

The Gurney Ball-Bearing Co., of Jamestown, N. Y., is now occupying its new shop, which replaced the one recently destroyed by fire.

A two-story addition is to be made to the Chamber of Commerce building, Main and Seneca streets, at a cost of $70,000. The construction will be of steel, terra cotta and stone and will make the buildings 15 stories in height. Green & Weeks, 110 Franklin street, Buffalo, are the architects.

The Columbia Turn-Verein is accepting bids for the erection of a club house 50 x 112 feet, of brick and structural iron. Chas. Ulrich, 402 Koons avenue, is president, and Jacob Oberkircher, 46 Orange street, is the architect.

BOSTON, MASS.

Railroad Developments Feature of the Week—General Improvement Shown.

June 14.

Tentative markets for machinery continue to develop, and the pig iron market for the New England district, according to the reports of dealers, shows improvement. Machinery men are buying small lots and one or two large contracts have been signed. The proposed expenditure of the Southern New England railroad, the branch of the Grand Trunk which recently secured a charter from Rhode Island to enter that state and to establish terminals and machine shops, is attracting a great deal of attention.

The Berkshire Woolen & Worsted Co., a new concern, has acquired the upper mill of the Peck Mfg. Co., at Onota Lake, near Pittsfield, Mass., and it will at once be equipped to manufacture high grade worsteds. It is hoped to have the plant running some time early in August. Ralph D. Gillett, Westfield, Mass, is president of the new company.

The machinery of the Leicester Card Clothing Co., of Leicester, Mass., has been sold to Ashworth Brothers & Co., who will at once move it to Fall River The Leicester company will go out of business.

The Norcross Brothers Co., contractors, of Worcester, have the contract for the enlargement of the Royal Worcester Corset Co.'s power house. The work will cost $10,000.

Dr. Windsor R. Smith. of West Brookfield, Mass., is secretary of a committee of milk producers in charge of the erection of a co-operative creamery in West Brookfield. It is intended to expand in the vicinity of $4,000 on equipment.

The machine firm of S. E. & T. Stott, of Lowell, Mass., is to go out of business and the entire equipment of the shops, comprising 109 lots of machinery as well as real estate, will be sold at auction June 15.

The Seekonk Lace Co., a new $10,000 concern in Pawtucket, R. I., has begun operations. It is reported that it will add to its equipment as business conditions demand.

The capacity of the Esmond Mills, of Esmond, R. I., manufacturers of fine cotton blankets, will be increased 25 per cent. Six additional sets of cards are now being set up. A large part of the new machinery, it is said, will be imported.

A Jewell filtration plant is to be installed by the Sayles Bleacheries, Saylesville, near Worcester, in the near future.

Plans have been completed for the erection of a new power plant for the Middletown (Conn.) Electric Light Co. The structure will be 70 by 62 feet and 28 feet high.

An invitation has been sent by the selectmen of the town of Norwich, Conn., to Giron Bros. & Co., of St. Etienne, France, to locate the proposed American branch of their velvet ribbon plant in that place. The company plans to build a mill in this country, 140 x 100 feet.

A shoe factory will be built at Lowell and Cherry streets, Portland, Me., for the A. H. Berry Shoe Co. The building will be of brick and concrete, 150 x 50 feet, three-story and basement, with a tower 30 x 30 feet. There will also be a power house, separated from the main building.

The Boston & Maine railroad will expend nearly $1,000,000 on its property in the neighborhood of Lawrence, Mass., during the coming summer. Amongst their improvements will be a round house, freight yard, 54 tracks and a fully equipped machine shop. H. Bartlett, Boston, is general superintendent of the mechanical department.

CINCINNATI.

General Decrease in Machinery Business—Foundries Also Quiet.

Office of THE IRON TRADE REVIEW
Room 11, Blymyer Bldg., June 14.

Machine tool builders, as a rule, do not appear entirely satisfied with the trend of trade as it is apparent in many instances that the record established during the first week of June has not been firmly maintained, and business shows a decrease. A few orders have been received for single machines, but as a general proposition manufacturers freely express themselves that new work is not coming forward in as attractive a manner as several weeks since. Furthermore, this decrease is not confined to any particular class of tools but is of a general nature and more or less affects the entire trade. A manufacturer of milling machines advises that orders for these machines have fallen off to a noticeable degree, with less activity shown for grinding machines and the smaller size of lathes. Planers of the larger type and radial drills show little change and apparently are in better demand than some others. The gear cutting trade is said to be well maintained, and presents a normal activity. Jobbing foundries as a rule are only fairly busy, and are able to make deliveries promptly of machine tool castings, which at this particular time are said to be not very pressing. Five heats per week are being run by several of these foundries, while others have sufficient work for but three.

The regular monthly meeting of the Cincinnati branch of the National Metal Trades Association was held Tuesday evening, at the Blue Grass Inn, in the Kentucky Highlands. Aug. Teuchter, of the Cincinnati-Bickford Machine Tool Co., was the host on this occasion. Business matters and conditions pertaining to the welfare of the association were discussed, considerable time being given to the subject of "Workmen's Insurance"

The Norton Machinery Co., making a specialty of second-hand power plants and machinery, reports a fair condition of trade, especially along the line of power equipment. A large portion of the inquiries are coming from Ohio concerns in need of increased facilities.

The new plant of the Hisey-Wolf Machine Co. is gradually assuming proportions and will probably be ready for the installation of its machinery early in September.

The Oesterlein Machine Co. reports receiving a fair share of trade offering. The M. L. Andrews Co., now occupying the second floor of the Oesterlein building, is about ready to occupy its new quarters, and is gradually arranging and installing its tools. As soon as the space is vacated by the Andrews people, The Oesterlein Machine Co. will utilize this room and will rearrange its equipment and increase its working capacity very materially.

The D. T. Williams Valve Co. has decided not to erect a new plant on Hunt street, as originally contemplated, but will occupy the present building of the Cincinnati-Bickford Drill & Tool Co., on Spring Grove avenue, when the plant being erected by the latter company at Oakley is completed, which will be about December. An additional building, 60 x 138 feet, will be erected for foundry purposes and fully equipped for the manufacture of the requisite brass castings used in the manufacture of the valves made by the company.

The Edna Smelting Works, Cincinnati, is to erect a new brick building, which is to cost in the neighborhood of $100,000.

The Kelly Motor Truck Co., of Springfield, O., is building an addition, 80 x 150 feet, to its plant.

LOUISVILLE.

Few Orders Reported and Market Generally Quiet.—Contractors' Equipment Main Feature.

June 14.

The machinery market has been quiet during the past week, and few sales have been booked. Prospects are good, however, and following the end of the month and the beginning of the second half of the year it is believed that business will be fully up to the normal. Stock-taking for the semi-annual reports and the beginning of new fiscal year has held back buying to a considerable extent, and is still having considerable influence on the situation. Contractors' equipment continues to be the leading factor, with sawmill and coal mining machinery in good demand owing to the development work which is being pushed in eastern Kentucky, where new railroads are being built and the country opened up rapidly. Owing to the fact that the section is practically untouched, and contains large deposits of coal and large areas of heavily timbered land, it is believed that it will continue to develop as a heavy consumer of machinery used in those industries.

The Henry Vogt Machine Co. reports conditions good, and with prospects of large sales in sight. Officials of the company believe that the first half of the year will show heavy increases compared with the corresponding period of 1909.

The American Machine Co. has noted a good demand for freight elevators of late, and has delivered several of large capacity. The sale of refrigerating machinery has been surprisingly good for this time of the year.

The demand for bar iron is considerably better, according to the Ohio Falls Iron Co., of New Albany, Ind., which is now running its plant nearly to capacity. The railroads are buying heavily, and seem to regard the traffic outlook as satisfactory. The purchases by the railways are a most encouraging feature of the situation, as they have been in the market heretofore only to a limited extent.

The Apex Mfg. Co. has filed articles of incorporation here, with a capital stock as $10,000 and liability limited to $7,500. It will engage in the machine and foundry business. The incorporators are Edward H. Stevens, Edward C. Bender and Peter J. Cosgrove.

The old Avery plant at Fifteenth and Main streets, has been sold. The property, so far as can be ascertained, has been taken over by the Stratton-Turstegge Co., a local stove manufacturing concern, which was represented in the deal by Edwin T. Farmer, a local real estate man. The consideration involved was not revealed, but it is said to be close to $107,000. From the best information obtainable, it is understood that the Stratton-Turstegge Co. will move its present headquarters on Fifteenth street, between Rowan and Columbia, to the old Avery plant. It is also likely that some changes will be made in the property before it is occupied by the new owner. No definite plans have yet been announced, however.

The Louisville Drying Machine Co. reports a heavy volume of business, in fact enough business has been booked to keep the plant going for nearly the rest of the year.

Grainger & Co. are busy with machinery jobs which were booked some time ago, and while a good deal of new work is being figured on, not many orders have been booked during the past few days. The structural iron department is busy.

Bad weather has hurt inquiries, according to the Peerless Mfg. Co., but the car lot movement of goods has not been cut down much. Prospects are considered good.

WASHINGTON.

Navy Department Issues List of Interest—Department of Commerce and Labor Publishes Facts Concerning Foreign Requirements.

Office of THE IRON TRADE REVIEW,
Post Bldg., June 14.

The publication of bids for supplies wanted by the Navy department will be of interest to machinery men this week. The supervising architect of the Treasury department calls for bids on several postoffice buildings throughout the country, and the constructing quartermasters of different military posts also ask for bids on different construction jobs. The Department of Commerce and Labor has published some interesting information regarding the requirements as reported by consuls in different foreign countries and several of these are of special interest to iron and steel men and machinery manufacturers. The Isthmian Canal Commission has not published any lists of special interest.

Bids will be opened on June 28 by the paymaster general of the Navy department, Washington, D. C., for furnishing the following. Two motor driven centrifugal drainage pumps, seamless drawn brass steel buckets, 17,800 pounds sheet lead in rolls, 4,400 feet leather belting, 600 feet flexible steam hose, 74,100 pounds medium steel, 6,000 pounds square billet steel, 100 tons foundry pig iron, 12 sets wireless telegraph apparatus, one standard gage compressed air locomotive, one accumulator and supplying and installing and testing outside pipe line and charging stations, eight sensitive bench drills, one universal milling machine, one vertical milling machine.

He will also receive bids until June 21 for one heavy planing machine and one vertical duplex pump.

The commanding officer, Rock Island Arsenal, Rock Island, Ill., will receive bids endorsed "Ordnance Supplies, No. 4059," until June 29, for furnishing four horizontal tubular boilers, 100 pounds steam working pressure, 72 inches by 18 feet.

R. C. Hollyday, chief of the Bureau of Yards and Docks, Navy department, Washington, D. C., will receive bids until 11 a. m., July 2, for one 15-ton three-motor traveling crane for the navy yard, Mare Island, Cal.

R. V. Ladow, superintendent of prisons, Department of Justice, will receive bids until July 5, for furnishing cast iron lintels for attic story windows for the east cell wing at the United States penitentiary at Leavenworth, Kans.

The commissioners of the District of Columbia, Washington, will receive bids until 2 p. m., July 1, for installing a 75-foot aerial extension ladder and raising mechanism on one truck to be used in the fire department. Application to be made to the property clerk, District building, Washington.

Captain F. C. Boggs, general purchasing officer, Isthmian Canal Commission, Washington, will receive bids until June 28, for furnishing locomotive cranes and steel plates under canal circular 589.

The constructing quartermaster, Fort Howard, Md., will receive bids until July 5, for the construction, plumbing, steam heating, electric wiring of a guard house, one set of quarters for four officers, for construction, plumbing, wiring of fire station and construction of extension to the ordnance repair shop. Plans will be furnished on deposit of $5.

The supervising architect of the Treasury department, Washington, will receive bids, until July 7, for the construction complete, including plumbing, gas piping, heating apparatus, electric conduits and wiring of the United States postoffice at Beloit, Wis. He will also receive bids until July 18, for the construction complete, including plumbing, gas piping, heating apparatus, electric conduits and wiring of the United States postoffice at Demopolis, Ala. He will also receive bids until June 29, for the construction complete, including plumbing, gas piping, heating apparatus, electric conduits and wiring of the United States postoffice at Chambersburg, Pa.

The Department of Commerce and Labor reports that an American consul in Africa states that a furniture house in his district is about to enlarge its factory and during the next few months will most likely become progressive and make large purchases of wood-working machinery of all kinds. Reference No. 4930.

An American consular officer in Latin America states that a local business house desires to receive full information as to prices, specifications, shipping weights, etc., on machinery for the manufacture of wire nails. Information is also desired as to the form of wire and other material used with this machinery, concerns that supply it and approximate cost thereof. Reference No. 4931.

An American consular officer in a European country reports that manufacturers in his district are unanimous in declaring that American machine tools are superior to those of Euro-

pean manufacture and if they could be purchased at a reasonable price direct instead of through European agents, their sale would be increased very greatly. Further detailed information from this report, together with the names of business men to whom correspondence regarding this matter should be addressed, can be obtained by application to the Bureau of Manufactures. Reference No. 4940.

An English engineer, associated with a business house in the Levant, writes that he is prepared to undertake agencies for the sale of goods through the whole of Syria, Palestine and Cyprus, and desires catalogs, discounts, agency terms, etc., on machinery and supplies, as follows: Flour mills, well boring machinery, turbines, irrigation apparatus, hand and power cranes, iron bridges, iron girders, oil and gas engines, electric fittings and machinery and engineers' technical instruments. Reference No. 4947.

An American consular officer in a European country furnishes the name of a business man in his district who desires offers from American manufacturers of locomotives and steel rails for ordinary standard gage railways, as well as for railways for mining purposes. The offers are to enable him to make estimates to the directors of state railways for the construction and equipment of new lines which have been proposed. Reference No. 4972.

An American consul in Great Britain reports that a firm of ship brokers in his district desires to receive quotations for marine motor engines for wooden vessels of 100 to 150 tons. Reference No. 4981.

E. M. Hayes, 1139 Park road, Washington, wants to correspond with makers of Portland cement machinery and is especially interested in hollow tile cement blocks.

DETROIT, MICH.

Foundrymen's Convention Likely to Benefit Machinery Trade—Many Developments Amongst Automobile Builders.

June 14.

The meeting of the American Foundrymen's Association has given an opportunity for a large number of the Detroit manufacturers to meet some of the leading foundrymen of the United States and Canada, and they have taken advantage of the occasion by attending the meetings and looking over the exhibits. There has been a scattering lot of small orders, but nothing large is before the trade. It is hoped next week will show better developments.

There are two or three automobile equipments which may come to the surface within the next two or three weeks. One of these is a new commercial vehicle, the model of which is nearly completed. It is being developed by men who are well posted in the automobile line, but they will not disclose their plans until their model car is perfected.

One of the interesting items before the trade this last week was the additional equipment required for the Detroit Board of Education for the high school technical departments. The board tried out this past year, a fairly well equipped department, modeled after the lines of the Chicago manual training schools. It has worked so well that the system is being extended, and the new equipment will consist of 22 motor-driven Oliver speed lathes, band saw, wood planer and a complete assortment of small tools, benches, etc. Bids were opened June 7.

The Puritan Brick Co., with offices in the Majestic building, is planning to erect at Hamden, Vinton county, O., a large cement plant. It is now operating one of the best brick plants in the country and having the necessary stone near at hand, thinks it will pay it to put up the cement plant.

The Great Lakes Engineering Works is considering enlarging its Detroit works. The matter is now being worked out in its engineering department, and when figures are complete will be presented to the stockholders for approval.

The Paterson Automobile Co., of Flint, Mich., has purchased ground in Windsor, and will establish a Canadian branch. The buildings now on the property will be remodeled at once, and work started under the supervision of T. G. Ferris.

The question of a steel plant for Detroit has made no progress this week. A large tract of land between Campbell and Junction avenues, south of Jefferson avenue, has been optioned by Andrew H. Green, of the Solvay Process Co., to Rogers, Brown & Co. The parties interested refuse to give any information as to the deal, but promise to make an announcement when plans are perfected.

The Air Cooled Motor Co., Lansing, maker of stationary gasoline engines, is building a new plant, which will be ready about the middle of August.

The Reliance Motor Truck Co., Owosso, Mich., will begin at once an extensive addition to its plant. It will include a new machine shop, assembling room, body factory and paint shop; $150,000 worth of machinery will be purchased.

The American Blower Co. reports a very large trade. Its present shop is very crowded, and to afford some relief, it is building a new casting storage house 60 x 160 feet across the street from its main plant. Other buildings may be added later.

The Champion Manufacturing Co., a new company starting at Pontiac, Mich., has purchased an existing shop, and will make some improvements to the building and put in some more machinery and will build stationary gas and gasoline engines.

Thomas Mercier has just built a shop on Beecher avenue, which he is fitting out with necessary machinery for making interior finish for buildings and contractors.

The Grabowsky Power Wagon Co. has let a contract for another building to be added to its new plant now in the course of construction.

The Hayes Manufacturing Co., Detroit, has purchased the wagon works at Ionia, and will establish a body making plant there. It will dispose of its wood-working machinery and lists can be obtained by addressing its main office.

The Agnew Electric Welding Co. has just sold its plant to The Electric Welded Products Co., Cleveland. It is not known as yet what the Cleveland company proposes to do with this plant. It is still being operated to full capacity.

The Grant-Wood Co., of Chelsea, Mich., will shortly commence manufacturing high grade steel balls.

The Kelsey-Brewer syndicate, Grand Rapids, has purchased the property of the Kankakee Electric Light Co., Kankakee, Ill., and will spend several hundred thousand dollars in improving the plant.

The Lozier Motor Co. will equip its new plant for electric motor drive and current will be supplied from a 1,000-horsepower electric power plant, which will be built in connection with the new works.

The Brush Runabout Auto Co., of Detroit, has let contracts for its 152 x 128-feet, 132 x 152-feet and 152 x 32-feet two and three-story buildings.

The Detroit Core Machine Co. is erecting a two-story factory building 120 x 58 feet at a cost of $15,000. Delisle & Culbertson, Penobscot building, Detroit, are architects.

Contracts have been awarded in connection with the erection of the new $1,000,000 forge plant to be erected at Jefferson avenue and Connors Creek, Detroit, for the Anderson Forge Co. The iron and steel contract was awarded to H. B. Lewis, 45 Joseph Campau avenue, Detroit.

The Cartercar Co., Pontiac, Mich., is reported contemplating a large extension to its automobile plant.

The Seitz Motor Co., Detroit, which was recently incorporated, is looking for a site on which to erect an automobile factory.

The Burroughs Adding Machine Co., Detroit, is building another addition to its factory which will give it added floor space of 78,325 square feet. The structure will be of concrete, 241 x 65 feet.

SEATTLE.

Machinery Market Quiet on the Whole—Several Important Buildings Planned.

Office of THE IRON TRADE REVIEW
942 Henry Bldg., June 14.

There is little of interest to report in the machinery field this week and although inquiries are not lacking, they are scattered and are for the most part for single tools. Several new buildings are planned or already under construction and when these are further advanced they will necessitate the purchase of machinery of different kinds. Prospects look bright for a good summer trade in all lines.

The Vulcan Iron Works, Seattle, is having plans drawn for a six-story reinforced concrete warehouse, 136 x 250 feet, to be erected at Fourth street south and Connecticut street. S. A. Jennings is the architect.

The Griffin Wheel Works, South Tacoma, is revising its plans for its new building to lower the cost of construction and will shortly submit new plans for bids.

Bids will be received by Pooley, Luxton & Pooley, Chancery Chambers, Victoria, B. C., for the purchase of the Genoa mill machinery and boilers.

The Industrial Engineering Co., W. C. Alvord, president; E. H. Cassett, vice president; J. H. Lamoree, secretary and treasurer, has taken over the Loggers' & Contractors' Machinery Co., and doubled its office space, at 71 Fifth street, Portland, Ore.

The Western Engineering Co., of Pioneer building, Seattle, has moved its offices to 513 Chamber of Commerce building, Tacoma, Wash.

The Queen City Machine Works, J. L. Breeze and E. P. Ederer, proprietors, has moved its shop to the foot of King street, Seattle, Wash., from the old location at First avenue south and Connecticut street.

Plans have been completed by the Great Northern Railway Co. for extension to its repair shops at Hillyard, Wash., at a cost of approximately $40,000. Plans are also being considered for a two-story depot building estimated to cost $20.000.

Fred A. Jacobs, Fifth and Alder streets, Portland, Ore., has plans prepared for a 12-story steel building at corner of Seventh and Yamhill streets, Portland, Ore. Ellis C. Lawrence, Lewis building, is architect.

Tenders are asked for the laying and jointing of 14 miles of 25-inch riveted steel water main and 7,780 feet of 12-inch and 7,500 feet of 13-inch lap welded pipe, by the city of New Westminster, B. C. Plans and specifications may be obtained from the city engineer.

The Oregon & Washington railway, Central building, Seattle, is preparing plans for two reinforced concrete viaducts to be built between Fourth and Fifth avenues on Jackson street and Seattle boulevards, at a cost of $700,000.

The Barclay Sound Cedar Co., of Alberni, B. C., will shortly begin the erection of a large saw mill on its water front property.

The Baring Concrete Co., Baring, Wash., is in the market for quarrying machinery and is having plans completed for a hydro-electric compressed air plant for operating all tools and machinery. Address J. Deminico, manager, 1219 Alaska building, Seattle.

The Northwest Wheel & Wagon Co., of Bellingham, Wash., has selected a site for its factory to be built in Bellingham. C. L. Thomilson, of Portland, is president of the company. The directors are C. L. Thomilson, F. R. Pettitt, A. F. Pettitt, M. L. Smith, W. H. King.

The Polson Implement Co., 926 First avenue south, Seattle, has plans prepared for a $275,000 six-story steel and concrete building to be erected at Western avenue and Columbia street, Seattle. Saunders & Lawton, Alaska building, are the architects.

The Western Gas Engine & Machine Works, Connecticut street, Seattle, and the Schaake Machine Works, 1737 First avenue south, have consolidated and are continuing under the name of Western Gas Engine & Schaake Machine Works, with Wm. L. Edwards as manager. The new company keeps the old quarters of the Western Gas Engine & Machine Works and will continue the manufacture of Western gas engines in addition to their regular machine shops. The company is enlarging its space and installing the machinery used by the Schaake Machine Works.

BALTIMORE.

Conditions Quiet and Little Buying Being Done—Many New Buildings Planned.

June 14.

There is little activity among manufacturers and repair shops using machine tools, consequently there is little business to be had from this class for new equipment. A number of firms feel the need of new machinery, but will not buy unless compelled to do so through new contracts requiring new tools for their completion. This disposition leads to requests for quotations on machinery which will be bought if the inquirer gets the contract in connection with which he proposes to use the machines.

The government is buying new machinery for a number of its departments, especially the navy yards. L. P. Kemp, 19 East Lombard street, Baltimore, has secured contracts for eight motor driven sensitive drills for the Mare Island navy yard, one motor driven grinder for the Agricultural Department at Washington, one motor driven 24-inch upright drill for the Department of Commerce and Labor, third light house district, Staten Island, N. Y., one saw fitting machine for the Norfolk navy yard, one special drill for the Monitor Mfg. Co., of Baltimore, and one 20-inch upright drill for Daniel Weber, Baltimore.

Crook, Kries & Co., manufacturers of steam heating appliances, have leased for a long term the store property at the southeast corner of Park avenue and Saratoga street. They will improve the property and use it as show rooms.

The *Baltimore News* has awarded contract to the Geo. A. Fuller Co., New York, for the construction of a publishing plant and office building 18 stories high of steel frame construction, with five passenger and one freight elevator, total height 280 feet. Construction will be begun immediately.

M. Gilchrist, architect, Baltimore, has drawn plans for rebuilding the recently burned plant of Baugh & Sons Co.

Robert C. Ullrich, 72 Bunther building, Baltimore, invites bids until July 10 for the erection of a five-story warehouse and an additional story to its present building for R. W. Morris & Sons.

Emory & Mussear, 415 Professional building, are receiving bids for the erection of a six-story 95 x 93-foot warehouse, estimated to cost about $100,000, to be erected for the Western Maryland Railway Co., at York and Johnson streets.

The Weatherproof Nail Co., 451 North street, Baltimore, has again doubled the capacity of its plant by the addition of new equipment.

MISCELLANEOUS MACHINERY.

The F. S. Royster Guano Co., of Norfolk, Va., will establish an extensive fertilizer factory at Montgomery, Ala., which will have a capacity of 40,000 tons. It will be equipped with modern machinery, which is to be electrically driven. About $100,000 will be expended.

The Birmingham Turnbuckle & Forging Co., Birmingham, Ala., has been incorporated and will engage in the general forging business. C. M. Vanderver, Montgomery, is president, and Chas. H. Merritt, Birmingham, secretary, treasurer and general manager.

The Southern Equipment Co., of North Birmingham, Ala., is in the market for complete electrical equipment, including engines, boilers, etc., for four power stations. W. J. Alford, 3521 Twenty-seventh street, North Birmingham, is general manager.

The Anniston Foundry & Machine Co., Anniston, Ala., is preparing to erect a 320 x 120-foot extension to its foundry. The machine shop and pattern shop will also be extensively added to and improved.

The Great Southern Automobile Co., Augusta, Ga., has been incorporated with $100,000 capital stock, for the purpose of manufacturing automobiles. L. J. Williams and others are interested.

The Lexington Motor Car Co., Lexington, Ky., is moving its plant to Connersville, Ind.

The Albia, Ia., Light, Heat & Power Co. will build an addition to its plant and install new equipment.

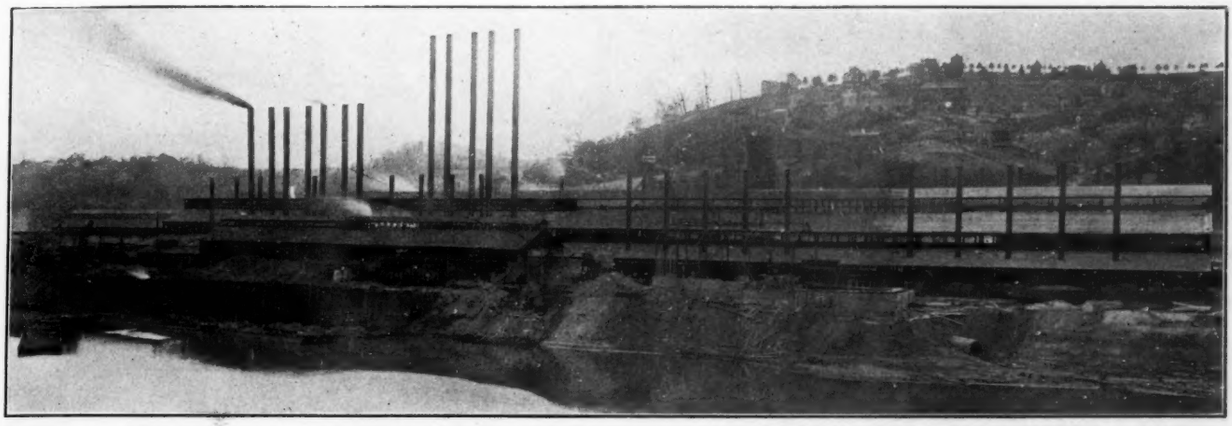
An extensive ship building plant, engine works and dry docks will be erected by the Lloyds-Brazilerio, the largest ship building company in South America, which will be capable of undertaking the repairing of Brazilian warships and also the construction of new vessels. Prof. Geo. R. McDermott, of Cornell University, has been granted a year's leave of absence and will leave shortly to travel in Europe, where he and his associates will devote their time to a study of the European ship yards previous to leaving for South America to superintend the construction of the new plant.

The Augusta Railway & Light Co., Augusta, Ga., John H. Adams, chief engineer, is contemplating the installation of a 1,000-kilowatt steam turbine with the necessary boilers and accessories.

A 5,000-horsepower hydroelectric plant will be erected on the Tonantongo river, about 15 miles east of Ixmaquilpan, Hidalgo, Mexico, and transmission lines will be constructed to convey the power to the districts of Zimalpan, Actopan and Ixmaquilpan, Hidalgo, Mexico. J. C. Azan is engineer.

The Ford Motor Co., of Detroit, Mich., has begun work on its new $50,000 plant at Sheffield, Mo. Clifton B. Sloan is the architect.

The Eagle Rolling Mill Co., New Ulm, Minn., is to erect a 5-story mill costing $100,000.



NEW PLANT OF MCKEESPORT TIN PLATE CO., FROM THE NORTHEAST, SHOWING BOILER PLANT.

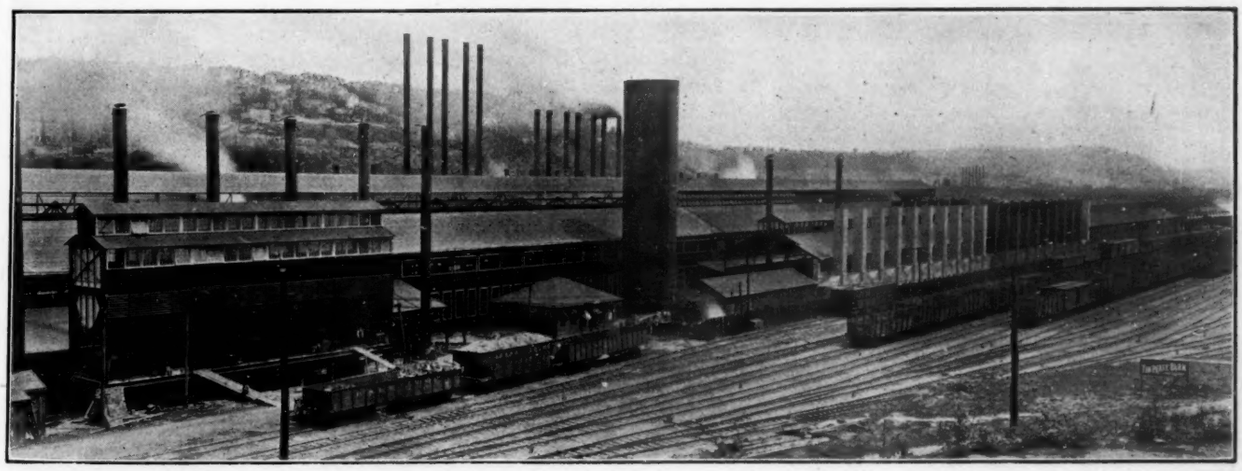
THE NEW MILLS OF THE McKEESPORT TIN PLATE CO.

An Important Addition to the Tin Plate Industry Erected in Record Time.

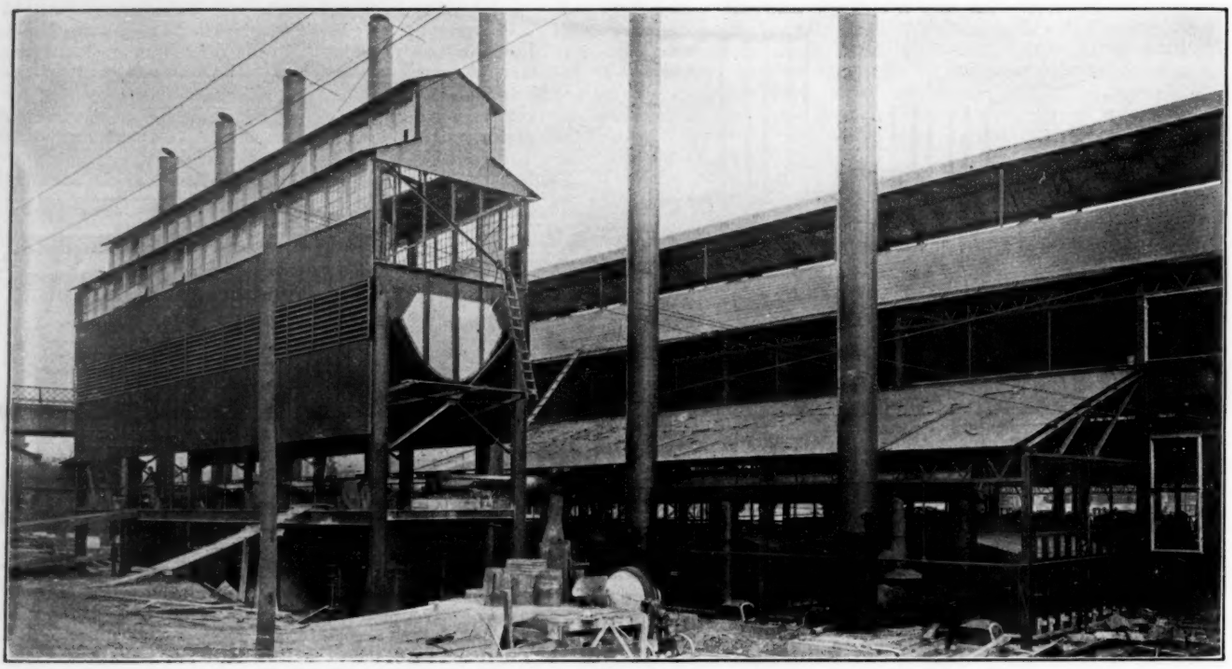
The completion of the new plant of the McKeesport Tin Plate Co., McKeesport, Pa., is an event of considerable importance, not only to the sheet and tin plate industry, but to engineers as well.

The old plant of this company, built seven years ago, consisted of what is known as a 10-mill plant having two trains of five hot mills each, and the necessary equipment of cold mills, annealing furnaces, tinning machinery, etc. Recently the capacity of the plant was doubled by the addition of 10 more hot mills with the necessary increase of capacity in all departments. Exceptionally quick time was made in the erection of the new mills and tin house. All of the contractors on this work made individual records for rapid work. The erection of the structural iron work for the buildings commenced approximately on March 15, 1910, at which time also the active work on the erecting of the furnaces commenced. The annealing department, however, was built entirely new since it was found advisable to adopt producer fired furnaces in place of coal fired furnaces such as had been used in the old plant. With a larger boiler capacity it was also found advisable to install mechanical stokers together with coal and ash-handling machinery. The entire extension of all of the buildings comprised in the new construction had to be built on ground that was for the greater part cinder fill and below that quicksand. For these reasons all of the foundations are built on piles. Work on the excavation and pile driving was begun about Sept. 1, 1909. There are some 15,000 feet of concrete piling on this work, most of the piles running to a depth of 62 feet below the mill floor level. The work of placing the piles was done very successfully by the Cranford Paving Co., of Washington, D. C. The foundation work, which was unusually difficult, owing to the great depth, was carried out by H. O'Herron & Co. The consulting engineers on the work were Diescher & Sons Co., of Pittsburg.

The tin house, assorting house and warehouse are located in one building having an area equal to 60 x 1,080 feet. These departments are served by two cranes traveling the full length of the building. The producer house and coal bunkers were furnished by the Independent Bridge Co., the re-



PLANT FROM SOUTHEAST, SHOWING PRODUCER HOUSE AND STAND PIPE.

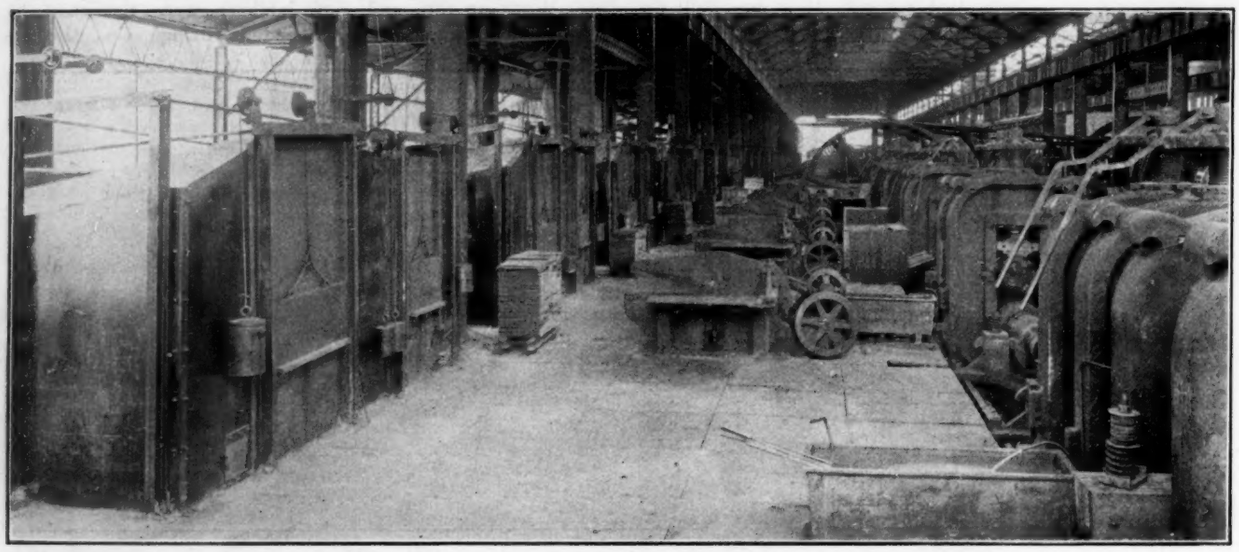


PRODUCER HOUSE AND COAL BUNKER ADJOINING ANNEALING FURNACES.

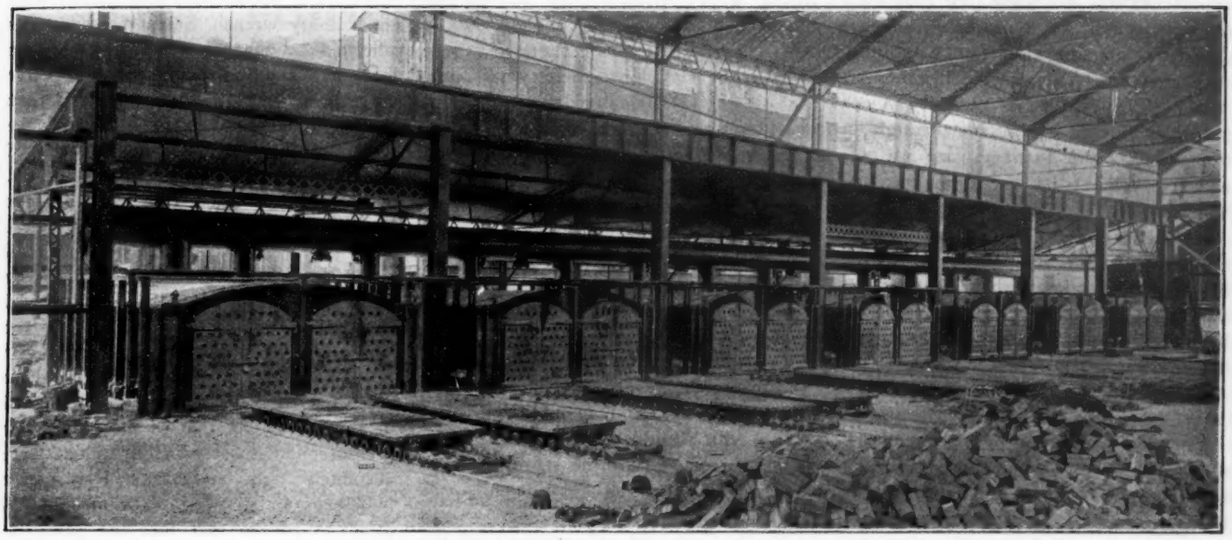
inforced concrete system employed was installed under the Brown Hoisting Machinery Co.'s patents.

The buildings are of the ordinary mill building type, the tin house and warehouse being of brick and steel construction and erected by the Lawrence Steel Construction Co., general contractors. All of the steel work was fabricated by the Riter-Conley Mfg. Co. The mills, engines, shears and pickling machinery were all furnished by the Mesta Machine Co. The electric motors and generators were furnished by Allis-Chalmers Co., and the boilers, by the Babcock & Wilcox Co., are of 3,600 horsepower Stirling type. The stokers were furnished by the Green Engineering Co., the cranes by the Case Crane Co., and the tinning machinery by the Anderson Foundry, of Elwood, Ind.

The bars are delivered by railroad into the bar yard, which is controlled by a 15-ton crane, which, besides one other of the same capacity, controls the hot mill department. The bar shears, set at the gable of the hot mill building with their receiving tables extending into the bar yard, are of such capacity that either one can furnish enough bars to supply the entire requirements of the plant. The bars are carried by cranes and on racks to the sheet and pair furnaces in the hot mill department. After passing through this department, the product goes through the processes of pickling, annealing and cold rolling in the usual way, and then passes to the tinning department. The tinning department has forty 14-inch tinning machines and the regular equipment of cleaning machinery. There is one feature in this department that is worthy of special mention; the plates are handled from the tinning machines to the cleaning machines automatically by special machinery designed by Mr. Steiner, the superintendent of this department.



VIEW IN HOT MILL, SHOWING COMBINATION SHEET AND PAIR FURNACES.



FRONT VIEW OF HAGAN ANNEALING FURNACES.

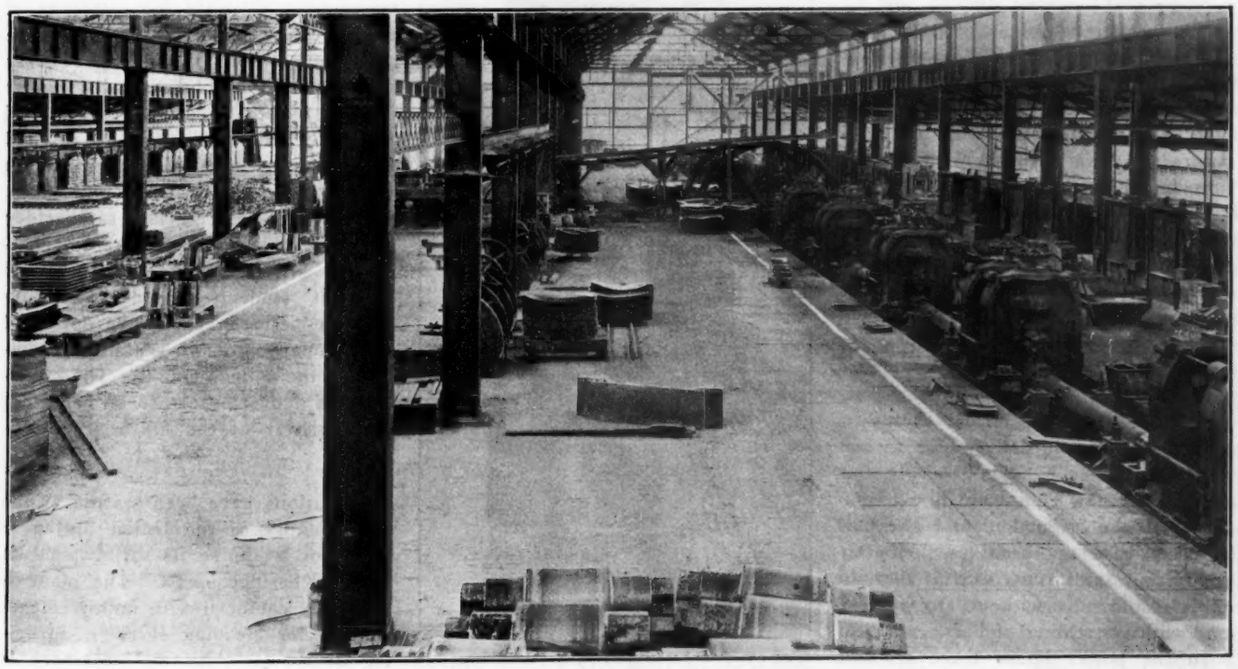
The boiler plant is located on the river front, the boiler house standing about 40 feet from the dock line, which space is used for storage of coal. The coal is brought in barges and lifted from the river to the coal-handling machinery by the yard crane and clam shell buckets, where it is crushed and classified into the various grades for the stokers, sheet and pair furnaces and gas producers, to all of which it is delivered automatically.

The water used in the plant is pumped from a series of drilled wells located in a tunnel about 24 feet below the boiler house floor. As the water of the Youghiogheny river is very injurious to boilers, some means of securing pure water was necessary and the method adopted has proven highly successful, as the water obtained from the wells has shown itself to be almost innocuous.

The pumping plant consists of Epping-Carpenter Co. pumping units of 1,000,000 gallons capacity, pumping from the wells to a stand pipe 24 feet diameter, 100 feet high, built by the Petroleum Iron Works Co., from which all of the water required about the plant is drawn.

The furnaces in the various departments of the plant were designed and constructed by George J. Hagan, of Pittsburg, who, in fact, did all the work about the boilers and tinning machinery, including fire brick work.

The furnaces in the annealing department consist of seven double furnaces. Each furnace has an inside clearance of 17 feet wide, 19 feet long, and will hold at one charge 8 pots, each pot containing 10,000 pounds of black plate. The furnaces are of an improved type designed especially for producer gas. Five of these furnaces are sufficient for general operation, the other two are held in reserve. The strength of the binding of these furnaces and the thickness of the walls may be considered extravagant, but



GENERAL VIEW OF INTERIOR OF NEW PLANT.

experience has demonstrated that such construction is good practice and that the fuel consumption and maintenance cost are thereby considerably reduced. This feature of stability is apparent in all the equipment throughout the plant. The furnaces are all situated in a leanto of the annealing furnace building and are all served by traveling cranes. The charger tracks are of sufficient length to allow the full charge to be withdrawn so that the furnace doors can be closed and the heat of the furnace retained, thus making a practically continuous process.

The Gas Plant.

The gas is carried by overhead gas flues along the full length of the seven furnaces. A feature of the design of these furnaces lies in the introduction of the gas in relation to the air ports. The admixture of air and gas is so perfect that the gas ignites in a perfectly cold furnace without first building a wood fire to bring up the temperature. Of course the high grade of the gas delivered by the four producers is also partly accountable for the quick ignition. The producers are located in the rear of the furnaces, and are all connected up to a main gas line, forming one unit. Each producer is 11 feet diameter, 12 feet high, and is of the continuous water seal type and has a capacity for gasifying approximately 15 tons of coal in 24 hours. No mechanical devices are used for poking and cleaning, but this is off-set by advantages of simplicity of design, conveying of coal to hoppers by coal-handling devices, and by reduction in cost of labor about the gas house compared with the old system of hand firing. This, together with maintenance cost in comparison with mechanical apparatus of a similar nature will, it is believed without question, make a favorable showing for the new installation.

The Furnaces.

The sheet and pair furnaces in this plant are of a special design worked out by the company's manager, J. E. Lauck, for its special practice. This plant has always held the world's record for tonnage, requiring, therefore, a furnace that will deliver bars as fast as the mills can handle them. In this respect the new equipment is even superior to the original plant. The new furnaces have not been tested for capacity, but are turning out all that the mills can handle without any forcing and with no scaling of bars.

In the power house there are two 300-kilowatt units, the engines for which were furnished by the Mesta Machine Co., and the generators by Allis-Chalmers Co. Either of these units is of sufficient capacity to operate all the electrically-driven machinery about the works.

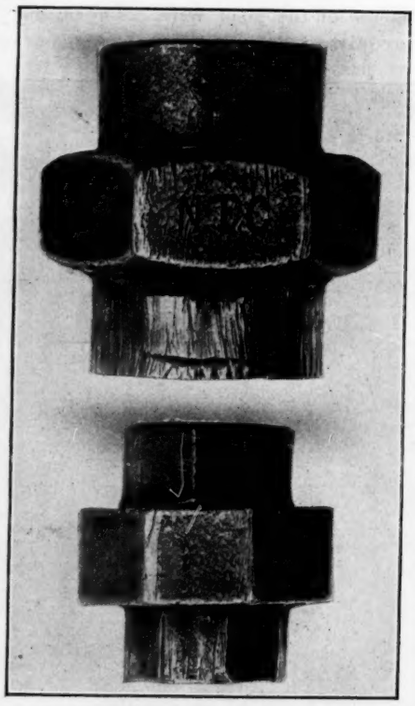
It is conservatively estimated that the plant as now in operation with 20 mills, will turn out 7,500 tons of product per month, based on the capacity of the first 10 hot mills which have been in operation for seven years, and have always held the record for tonnage per mill.

In the construction of this plant the greatest care was taken that all apparatus, buildings, and, in fact, the entire equipment, should be as simple as possible and of such ample strength as to insure operation with the least possible risk of shut down.

E. R. Crawford is president of the company; J. E. Lauck is general manager; W. L. Curry, treasurer.

DURABILITY OF PIPE UNIONS.

An interesting test has recently been conducted by the National Tube Co., which demonstrates that a properly made pipe union is capable of withstanding severe usage. One 1-inch octagon and one 1½-inch round Kewanee unions were taken from stock with no effort at selection. Each union was connected by means of a nipple and valve and nipple to a steam line. Into the outer end of each union was screwed a nipple and on the outer end of each was a second valve. The union was then closed with an ordinary wrench. Steam pressure was admitted by means of a valve between the union and the main, the outer valve was opened to blow out the air and then closed. After close examination to make certain that there was no leakage of steam, the steam pressure was shut off, the outer valve opened to blow out the steam, and the union entirely separated. This operation was repeated over 1,000 times on each of the unions, and during the entire time, it is said, neither showed the slightest sign of leakage. After the application of this test, each union was taken to the union department and there subjected to the same test as is applied to all new unions, that of 110 pounds air pressure under water. Both unions were absolutely tight under this test, not a bubble of air showing. The makers call attention to the fact that the point involved in this test is that wherever a union is to be disconnected and reconnected an indefinite number of times, the gasketless type is preferable to the gasket type, because in the latter case a gasket must be cut and fitted frequently, involving not only delay, which means labor and money, but also the feature of an uncertain joint. The half tone herewith shows the unions with which the tests were conducted.



KEWANEE 1½-INCH AND 1-INCH UNIONS AFTER UNDERGOING TESTS.

SCHOLARSHIPS FOR GRAND TRUNK RAILWAY EMPLOYES.

Announcement is made that the Grand Trunk railway will give three free scholarships, each covering four years, in the faculty of applied science of McGill University, Montreal, Que., to apprentices and other employes of the company under 21 years of age and to minor sons of employes. These scholarships will be awarded under competitive examinations to be held June 13. Scholarships will be granted for one year and be renewed from year to year, to cover the four years, provided the holder makes satisfactory progress. The holders of these scholarships will be required to serve the road as student apprentices during vacation periods, and, at the option of the company, for two years after completing the college course. The conditions of admission are to be had from the registrar of the university, Montreal.

Operations have been started at the new foundry of the Union Spring & Mfg. Co., adjoining its spring plant at North Kensington, Pa. The plant is modernly equipped with improved machinery for cleaning castings, annealing ovens, etc. All its machinery is electrically driven.

THE THIN-LINED WATER-COOLED BLAST FURNACE

A Radical Change in Construction Methods Which Gives Promise of Good Results.

American blast furnace practice has clung rather tenaciously to the thick-lined type of furnace, although for about 15 years German ironmasters have been getting good results from stacks which have a very much thinner lining. In American practice, the thickness of the lining has varied somewhat from time to time, but the general tendency has been in the direction of an increase in the thickness and the average coke furnace in America today has a lining from four to five feet thick, requiring about 550,000 bricks, most of which are of the highest grade of fire brick, as compared with 50,000 in the thin-lined furnace, with a lining nine inches thick.

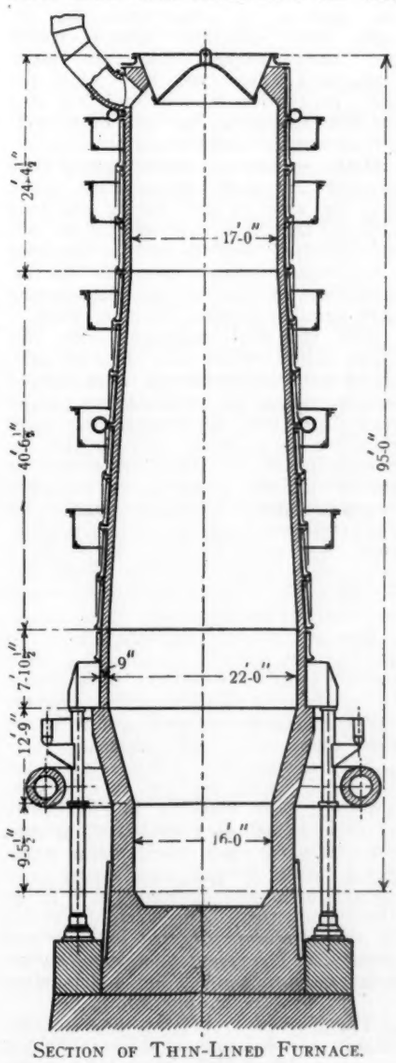
About 15 years ago, at the Vulcan works, Duisburg, Germany, experiments were made with a thin lining, the shell being made of cast iron plates. This type of furnace proved its efficiency and has been adopted by a number of German ironmasters, there being at least eight of these furnaces in operation in Germany at the present time. Because of its greater strength, steel castings were substituted for the cast iron, and at the Krupp works, rolled steel plates were tried, but these did not prove satisfactory and their use was abandoned.

Thin-Lined Furnaces in United States.

There are at present only five furnaces of the thin-lined type in operation and building, in the United States, and all of these are owned by the United States Steel Corporation. There are two active stacks, one at Lucy furnace, Pittsburg, and No. 8 at South Works, Illinois Steel Co., South Chicago. Those in course of construction are, No. 5 at the south works of the Illinois Steel Co., South Chicago; one at the Ensley, Ala., furnaces; and one at the Central furnace, Cleveland, of the American Steel & Wire Co., a subsidiary of the Steel Corporation.

James Scott, general superintendent of furnaces for the Carnegie Steel Co., and H. A. Brassert, superintendent of furnaces at South Works, have been pioneers in the development of this furnace in the United States, Mr. Scott leading the way in the adoption of the rolled steel plate shell at the Lucy furnaces.

As will be seen from the accompanying illustration, which represents a vertical section of No. 8 furnace, at South Works, the general lines and dimensions of the modern furnace are adhered to, the chief departure being in the lining and in the provision for applying cold water for cooling purposes at the top and about mid-height of the outer shell. It also might be mentioned that galleries are provided, running around the stack at intervals of a few feet, and that a shield has been thrown about the entire furnace to protect the men working about the base of the furnace from the waste water which falls from the shell. The



SECTION OF THIN-LINED FURNACE.

two furnaces mentioned are each 95 feet in height by 22 feet diameter in the bosh, but differ in this respect, that No. 8 has a cast steel shell, while No. 5 is being constructed of steel plates.

It is believed that the thin-lined, water-cooled blast furnace has demonstrated its superiority over the older types and has come to stay. The United States Steel Corporation, the only operator in the United States which has experimented in this field, probably will gradually replace the old with the new style, if the latter proves as efficient as it now seems to promise.

The type of furnace being an established fact, the principal points remaining to be determined are in the line of mechanical methods and in material to be used. Whether cast iron, as formerly used, or cast or rolled steel as adopted at present, is the best material for the shell, is a point which still lacks satisfactory demonstration, but it is probable that the experience gained in the next few years, or possibly months, at Lucy and South Works furnaces will go a long way towards settling questions of detail.

Comparison of Types.

As between the thick lining and the thin, the advantage would seem to be with the latter. In the matter of first cost, there is little difference, the higher cost of construction, in some directions, of the new type being compensated for by the smaller quantity of high-priced brick and the time and labor in setting them, particularly the latter, for every hour a furnace is idle means not only unproductive investment, but also lost profits. The gain in time in relining is of course cumulative and with the question of first cost out of the way, the arguments become more and more forcible in favor of a furnace with a thin lining, water-cooled.

When a furnace of the old type is first blown in, its lines are theoretically correct, as dictated by years of experience; proper combustion and melting of stock being accurately figured for a minimum of coke consumption per ton of pig iron produced. From the start, the wastage due to

the intense heat and the erosion of the lining caused by the grinding of the coke, ore and limestone against it, produce a change in the lines, and the coke consumption rises steadily as the months go by and the departure from the original lines becomes greater, until it reaches a point which is economically prohibitive; the furnace is blown out, not merely because the lining is worn out, but also because it cannot be operated profitably.

Length of Life.

Claims as to the length of life of the new lining would be premature at this time. The average life of the lining of a 500-ton stack is about three years, equal to a production of half a million tons of iron. With a properly constructed, water-cooled thin lining, it is believed that a furnace might run almost indefinitely, and ten years or longer is not considered an extreme estimate. At the Lucy furnace, after it had been in operation on a thin lining for nine months, making ferromanganese, it was found that the hard, lumpy, manganese ore, dropping from the bell and striking the sides of the furnace had worn out the lining near the top and the furnace was blown out, when it was found that the lining, other than that injured by the falling ore, had been worn away only two inches.

Another claim it is said can be made for this type of furnace is that where coke consumption and other conditions are more uniform, a better grade of iron, or at least a more uniform grade can be produced.

Performance of First Furnace.

Stack No. 8 at South Works was blown in on the thin lining June 5, 1909, and the average daily output up to Dec. 31 was 425 tons, the average for December being 461 tons. The average coke consumption was 1,957 pounds per ton of iron.

During the same period stack No. 6, of the same dimensions, with a standard thick lining, blown in Jan. 3, 1909, made an average of 443 tons per day with 2,007 pounds of coke per ton of iron.

From Jan. 1 to April 30, 1910, stack No. 8 averaged 468 tons per day, with an average for April of 521 tons, on a coke consumption of 1,722 pounds per ton. During the same period stack No. 6 made a daily average of 486 tons with a coke consumption of 1,884 pounds per ton.

The United States Cast Iron Pipe & Foundry Co. will hold its annual meeting, June 22.

ENGINEERING INSTRUCTION AT UNIVERSITY OF PITTSBURG.

The trustees of the University of Pittsburg have adopted a plan of co-operation recommended by the committee on school of engineering, which is unique, and appears to blend most satisfactorily with the engineering environment of this institution. This plan will be put into operation, Oct. 1, 1910.

The following is an abstract from the report of the committee on school of engineering to the board of trustees:

It has been a matter of common observation in connection with the educating of young men who enter the engineering activities that those who spent their vacations while at school in engineering offices and industrial establishments have been better prepared for entrance upon their life's work than their fellow students of otherwise equal abilities, who devoted their time exclusively to school work. The contact with the engineering activities, even in this subordinate way, gives the student of engineering an insight into practical affairs which not only makes him of more immediate use to his employer upon graduation from school, but also fits him to pursue his studies to better advantage while in school.

If the student of engineering is thus benefited by such chance work as he may be able to get during vacation periods, then it is evident that he will be benefited still more by pursuing a systematic course in which the instruction in school is interspersed with suitable outside practical work.

The technical graduate who has taken school work only has no adequate knowledge of the organization which makes it possible for many men of diverse employment to work together as a single unit in the accomplishment of a desired result, or the system that is necessary for tying together inter-related departments for the attainment of economic production; nor does he even know as a beginner how to apply the knowledge at school in a manner altogether satisfactory to his employer.

Because of this unpreparedness of the average technical graduate, a number of large corporations have established student apprenticeship courses for the benefit of such graduates as seek employment with them.

The engineering schools and the companies who employ their graduates are thus working independently in their efforts to prepare young men for entrance upon their life's work. Since both school and future employer have the common aim to fit the young man for efficient service at the minimum of cost in time and money, it is evident that the best results cannot be had by independent action, but by co-operation.

The University of Pittsburg, because of its splendid industrial environment, is most favorably situated to apply this co-operative principle to the education of young men who are preparing to enter the engineering industries. Instead of keeping the young man away from the actualities of his life's work for a period of four or more years prior to graduation, as is the general custom of engineering schools, the committee on the school of engineering have matured a co-operative plan whereby the student, while spending in school the amount of time usually devoted to instruction in our best engineering institutions, will work four terms of three months each in the engineering industries of the Pittsburg district. By this plan the student gets the usual theoretical course and in addition 12 months of practical work, all in the space of four years, the school work being arranged so that successive groups of students will furnish continuous service to the employer.

The Advantages Offered.

As compared with the engineering student who takes the school work only, he will be the gainer in the following respects:

1. Because of the opportunities to observe in detail the methods of production and the conduct of business, and the results of his contact with the men who are carrying on our engineering industries, he will be able to do his school work more effectively.

2. For the same reasons, he will, upon graduation, be of greater use to his employer. Indeed, many graduates will find good positions where they have done practical work on this co-operative plan, which they can fill satisfactorily from the start. In this regard the graduate who takes his course on the co-operative plan will possess a distinct advantage over the graduate who has taken school work only.

3. The money consideration received for this practical work will be ordinarily sufficient to meet the tuition expenses for his entire course at the university. In all cases the student of engineering will be materially benefited by thus early learning from actual experience the viewpoint of the wage earner; and the money received will be to many students an item of no small importance.

Courses in civil, mechanical, electrical, chemical and sanitary engineering are offered by the school of engineering of the university, in all of which there is incorporated the principle of co-operation. These five courses are arranged so as to be identical for the first three terms. This permits of developing the student to a certain extent along lines which are common to all engineering before requiring him to choose the specific course he is to pursue. These first three terms are looked upon as a probationary period in the sense that the nature of the work done by any particular student during this period will determine in the judgment of the faculty whether or not he is to be advised to continue in the school of engineering.

This work is conducted under actual commercial conditions and covers

four terms of three months each, distributed through the middle of the student's course at the university.

The purpose of this work is to give the student of engineering an understanding of the conditions and methods of the practical side of the profession which he expects to follow after graduation. This can only be obtained by actual contact with the engineering industries, and should be acquired at the earliest possible date. The student works side by side with other employes, and gets an insight into labor conditions. He has the opportunity to observe in detail the methods of carrying on engineering work and the conduct of business from the productive standpoint, and learns much of value in his formative years which cannot be had from either his professors or books.

While the university has made special arrangements with a number of our local concerns for the benefit of its engineering students, and will cooperate with the management of these concerns in every way possible, yet the student will be considered as a direct employe of the concern. He will serve as a regular employe for six regulation working days each week, for which he will receive the regular wages of a student apprentice, and shall be expected to observe strictly the rules and regulations of the company, and shall work under existing labor laws and conditions, including those pertaining to liability for accidents.

This industrial practice will be arranged so that the student will have an opportunity, as far as practicable, to engage in work pertaining to any phase of engineering in which he may be particularly interested.

The student will report to the proper instructor at the university one evening each alternate week for discussion of the work being done; and at the end of the term he will receive 20 credits when a written report of his work and observations during the term has been received and accepted by the instructor in charge.

OPERATING EXPERIENCES WITH A BLAST FURNACE GAS POWER PLANT[1]

The First Authentic and Comprehensive Report of Performance Under Commercial Conditions.

By Heinrich J. Freyn.[2]

The use of blast furnace gas engines in the United States was first undertaken in 1902 by the Lackawanna Steel Co. at Buffalo, followed four years later by the United States Steel Corporation in several of its plants. The import of the problem of utilizing the surplus gas may be realized by considering that 11,000,000 tons of pig iron were produced in 1909 by the United States Steel Corporation, and that for each ton of iron made per day, 25 brake horsepower is available for purposes outside of the power requirements of the blast furnaces, provided this power is itself produced in gas engines. If, therefore, all the blast furnaces of the corporation were blown by gas blowing engines and all other furnace requirements furnished by gas-electric engines, 750,000 brake horsepower would be available for other purposes.

The Beginning of the Plant.

In 1907 there were installed at one of the largest steel plants in the United States, four Allis-Chalmers double-acting, four-cycle, twin tandem gas engines, gas cylinders 42-inch diameter, 54-inch stroke, operating 2,000 kilowatt 25 cycle, 3-phase, 2,200-volt alternating current generators at 83.3 revolutions per minute. This addition to the existing steam-electric equipment was completed in 1908 and the electric power produced by these gas engines is used for electric-driven rolling mills and general light and power purposes. The gas-driven generators operate in parallel with the adjacent steam units and with other gas-driven generators located 20 miles away.

The gas engine plant under discussion has been in regular service for one and one-half years, during which period the experiences and results described in the folowing pages were obtained.[3] These were not gathered from the indications of one single experiment, or of a series of carefully prepared and conducted tests, but represent the average results of daily observations extending over one year's time. Since the degree of correctness depends on the accuracy of observation and care in recording the results of persons having various degrees of practical and technical training, inaccuracies entailing puzzling inconsistencies may have crept in and the data presented may not in every instance withstand the test of searching criticism; nevertheless it is believed that such information, derived from actual operation, will prove of more interest to the engineering profession than unassailable data obtained under test conditions.

The gas supply for the operation of all the gas engines of the plant is taken from six blast furnaces, all of which in 1909 were blown by steam blowing-engines, while the electric power for the plant was derived from both steam and gas-driven generators. This plant is therefore a so-called "mixed" plant, so far as the generation of power is concerned.

The quantity of blast furnace gas available for the operation of gas engines was therefore considerably less than it will be when four of these furnaces are blown by gas blowing engines. Because of the general business depression at the beginning of 1909, only three, and in the months of March and April only two, furnaces were in blast. Normal conditions were resumed about May or June, while all six furnaces were in blast during the months of September and October only.

Conditions of Installation.

The gas power station in question was conceived in 1905, and all preliminary calculations relative to the amount of gas available for operating gas engines were naturally based on the conditions existing at that time, making the proper deductions for reduced gas production due to the furnaces being out of blast for relining. Careful investigations showed that in 1906, 10 per cent of the total gas produced by six blast furnaces, equivalent to 10,200 kilowatt, was available for use in gas-

[1]Read at Atlantic City meeting of the American Society of Mechanical Engineers, June 2, 1910.

[2]Illinois Steel Co., Chicago, Ill.

[3]These experiences and records were compiled with the able assistance of Chas. C. Sampson, Mem. Am. Soc. M. E.

electric engines. The installation of 8,000 kilowatt in gas engines seemed therefore fully warranted, particularly as it was expected that two gas blowing engines simultaneously ordered would be in operation after November, 1907, in which case the gas surplus, even with only five furnaces in blast (one furnace down for relining) would have been more than ample to operate four 2,000 kilowatt of gas-electric units. It could not be foreseen that business conditions would change so radically in 1908, nor that the two gas blowing engines would be so delayed, that for three years the saving of gas, which would have materially improved conditions for the electric units, could not be realized.

While the logical way to begin would have been the installation of a number of gas blowing engines, instead of reducing the available quantity of blast furnace gas, such a procedure was impossible because of the immediate demand for increased electric power created by the installation of new electrically operated mills, as well as on account of local conditions of steam supply for the furnaces, which at that time prohibited the removal of a large boiler house, now occupied by the new gas blowing engines. From the circumstances, however, that gas-electric engines were installed before any gas blowing engine equipment existed, and that this power plant, as it so happened, had to be operated for almost two years under the most unfavorable and exacting conditions, a great deal of most valuable experience was gained, in that it was found that such a power plant could be maintained in operation—although with interruptions—with only two furnaces, and for a short period even with only one furnace in blast.

Output of Power Plant.

Table I shows the average kilowatt-hour produced by the gas power plant for each month of 1909, from which it appears that the average for the year was 5,760 kilowatt-hour, or 72 per cent of total capacity of the plant, and this average for various months varied from 66.5 per cent to 74 per cent with two furnaces, 61.5 per cent to 80.5 per cent with three, 69 per cent for four, 64 per cent to 82.5 per cent with five, 68.5 per cent to 78 per cent with six furnaces in blast. While during the first few months the number of furnaces in blast was very limited, the total output of the station was nevertheless not affected very materially. In fact, in the month of March, when only furnaces No. 1 and No. 2 were in blast, 74 per cent of the total capacity of the plant was produced, a higher figure than the average output of the plant for the whole year.

TABLE I.—MONTHLY RECORD OF KILOWATTS PRODUCED PER HOUR.

Month, 1909.	Kilowatts per hour.	Per cent of capacity.	No. of furnaces in blast.
January	4,920	61.5	3
February	5,450	68.0	3
March	5,940	74.0	2
April	5,330	66.5	2
May	6,440	80.5	3
June	5,550	69.0	4
Average for first half	5,600	70.0	—
July	5,140	64.0	5
August	5,930	74.0	5
September	5,500	68.5	6
October	6,270	78.0	6
November	6,080	76.0	5
December	6,600	82.5	5
Average for second half	5,920	74.0	—
Average for 1909	5,760	72.0	

A record is being kept as correctly as practicable of all shut-downs and their causes. Table II gives the monthly averages, as well as the percentage of operating time and of time lost chargeable to the engines, and due to outside causes. The power station is considered in this table as one unit, and the figures are averages applying to the four engines.

In Table II is given the average monthly operating time of the station for the whole year, from which it appears that the average for the year was 77 per cent of the total possible time, 14.2 per cent and 8.8 per cent being the percentages of the time lost due to the engine repairs and to outside causes beyond control. The respective figures for the first four months of the year show that the operating time from January to April was much lower than during the rest of the year, the lowest figure being 57 per cent in January. However, the month of March with 71 per cent shows again the noteworthy fact that with only two furnaces in blast the operating time was higher than the average for the first half of the year. This was made possible only by shutting off the boiler houses almost entirely. With the boiler houses off, blast furnace No. 1 made more gas than the gas engines, the stoves and one small boiler house could use, so that one bleeder at the furnace had to be kept open. During casting periods the engines were operated on the gas tank. In this manner operation was kept up for one whole week. The time lost chargeable to the engines is considerable for the first four months, due to the fact that owing to the uncertainty of sufficient gas supply under the existing conditions of furnace operation certain repairs and alterations were made on the engines, which otherwise would have been distributed over a longer period of time. It is to be noted any time lost is rigorously charged against the engines if the latter for any reason are not ready to resume operation at any moment.

The time lost due to outside causes was particularly heavy in the first four months of the year, varying from 11½ per cent in April to 19½ per cent in February. In the records the lost time chargeable to outside causes is subdivided into losses due to operation of the plant, such as line troubles, or output not required, etc.; and losses due to lack of gas. This particular infor-

TABLE II.—MONTHLY RECORD OF OPERATING TIME.

1909. Month.	Plant in operation. Hours.	Plant in operation. Per cent.	Plant down—Due to engines. Hours.	Plant down—Due to engines. Per cent.	Plant down—Due to outside causes. Hours.	Plant down—Due to outside causes. Per cent.
January	426	57	213	28.5	105	14.5
February	456	68	85	12.5	131	19.5
March	529	71	97	13.0	118	16.0
April	467	65	170	23.5	83	11.5
May	609	82	73	9.5	62	8.5
June	556	77	97	13.5	67	9.5
Average for first half	507	70	123	17.0	94	13.0
July	607	82	103	14.0	36	4.0
August	594	80	131	17.5	19	2.5
September	595	83	107	14.5	18	2.5
October	668	90	52	7.0	24	3.0
November	632	88	65	9.0	23	3.0
December	609	82	52	7.0	83	11.0
Averages for second half	617	84	85	11.4	34	4.6
Average for 1909	562	77	104	14.2	64	8.8

TABLE III.—MONTHLY RECORD OF LOSSES DUE TO OUTSIDE CAUSES.

1909. Month.	Plant down— Due to operation. Hours.	Per cent.	Due to lack of gas. Hours.	Per cent.
January	6	5.5	99	94.5
February	43	33.0	88	67.0
March	36	30.0	82	70.0
April	17	20.0	66	80.0
May	61	98.5	1	1.5
June	59	88.0	8	12.0
Average for first half	37	39.5	57	60.5
July	36	100.0	..	....
August	19	100.0	..	....
September	15	83.5	3	16.5
October	24	100.0	..	....
November	23	100.0	..	....
December	78	94.0	5	6.0
Average for second half	33	97.0	1	3.0
Average for 1909	35	55.0	29	45.0

mation is given in Table III, wherein the plant is again considered as one unit. Shortage of gas was responsible to the greatest extent for lost time from outside causes in the first four months of the year. In January this figure was as high as 94.5 per cent, and while the average for the first half of 1909 exceeds 60 per cent, the corresponding figure for the second half of 1909 is only 3 per cent.

Although the difficulties which were experienced in this period by the frequent inability of the blast furnaces to supply sufficient gas to maintain operation of the whole plant, without heavily firing coal under the boilers, had no serious effect on the gas power plant, one important question was in the minds of all during this period, namely the safety of the installation. Antedating only a few months this period of gas shortage, a serious accident had happened at another plant where through lack of gas while only one furnace was in blast, the preliminary cleaning plant, the gas holder and parts of the pipe line conveying gas to the engines, exploded with disastrous effect. This accident caused a great deal of uneasiness and alarm in other gas engine plants where several furnaces were out of blast.

Considerations of Safety When There is Shortage of Gas.

A gas power plant is endangered in two ways by lack of gas, either from collapsing of the gas holder bell or from explosion. In modern gas-cleaning installations, the so-called secondary washing plant, which refines the gas for use in engines, is usually equipped with some kind of rotary washers. Certain washers of this type, such as the Theisen, can give a vacuum of 3 inches of water, and a discharge pressure from 8 inches to 10 inches higher than the positive or negative pressure on the suction side. The washers deliver the gas to a gas holder under variable pressure dependent upon the raw gas pressure, while it is the principal object of the gas holder to maintain a constant gas pressure at the gas engines, irrespective of what the pressure at the blast furnaces or in the gas-cleaning plant happens to be. As long as the pressure of the gas, and therefore its quantity, is sufficient to allow the rotary washers to keep the gas-holder bell floating; in other words as long as balance exists between the demand for gas on the part of the engines and the supply from the furnaces, there is no danger to the installation.

Conditions Which Result in Danger.

If the gas supply falls below the demand, the volume of gas in the holder will cover the shortage within the limit of its capacity and until the bell, descending completely, rests on its landing beams. The rotary gas washers will then continue to operate, creating a depression in gas conduits by which they are connected to the gas main at the furnaces. The latter is virtually a large gas receiver into which all blast furnaces discharge their gas, and which in turn supplies the hot-blast stoves, the boilers, and the gas-cleaning plant. The vacuum created by the rotary washers will naturally be communicated to this main gas flue, but cannot be maintained as the overhead flue is connected with the atmosphere through hot-blast stoves and boiler stacks. Air will therefore rush into this flue and into the gas-cleaning plant and be drawn into the rotary washers together with whatever gas is supplied, and discharged into the gas holder. As long as these conditions exist, the gas-holder bell is not in danger from collapsing, but there is imminent danger from explosion to the whole plant. Rotary gas washers do not discriminate between gas and air, and continue to operate, filling all gas flues, gas holder and engine connections with a mixture of gas and air which under certain conditions is highly explosive. Should backfiring occur in the gas engines when receiving a mixture of gas and air instead of pure gas; that is, should the fresh incoming charge accidentally be ignited, consequences would be as prompt as disastrous—the air and gas mixture in the pipe system would explode, possibly wrecking the whole installation by a series of explosions.

This is precisely what did happen in the accident mentioned, and profiting by this experience steps were taken to prevent the occurrence of such an accident at the plant under discussion. Power house, gas washing plant and blast furnace office were connected by two independent telephone lines, and recording instruments, in addition to ordinary U-tubes, were installed in the washer building and at the blast furnace office, so that not only may the gas pressure be observed at any time, but it is automatically recorded for each period of 24 hours. Moreover an automatic alarm was installed at the blast furnace office, which rings a bell as soon as the gas pressure in the raw gas descends below a certain danger point, and whistle signals operated by solenoids from the blast furnace office were provided in the boiler house to inform the head fireman of the number of boilers to be "taken off" or "put on" gas. In addition an automatic bell was placed in this boiler houuse, calling the operators' attention to any drop below normal in the gas pressure.

Precautions to Prevent Explosion.

Independently of the blast furnace department, the gas-cleaning plant operators were also carefully watching the gas pressure. The position of the gas-holder bell was made visible at any time by a system of incandescent lamps in the washerhouse, and strict orders regarding the use of the gas were issued by the blast furnace superintendent, instructing the men to favor the gas engines under any circumstances, as it was fully recognized that having taken care of the requirements of the hot-blast stoves, the remaining gas could not possibly be more efficiently utilized than in the gas engines. The practice was to shut off the gas immediately at a certain number of gas-fired boilers, as soon as the pressure in the overhead gas flue dropped below a predetermined point. Additional boilers were taken off if the gas pressure did not recover, so that sometimes as many as 24 boilers were being fired by coal exclusively. If this did not have the desired result, stoves were taken off for short periods to increase the gas pressure above the danger point. At last, if all these steps did not improve

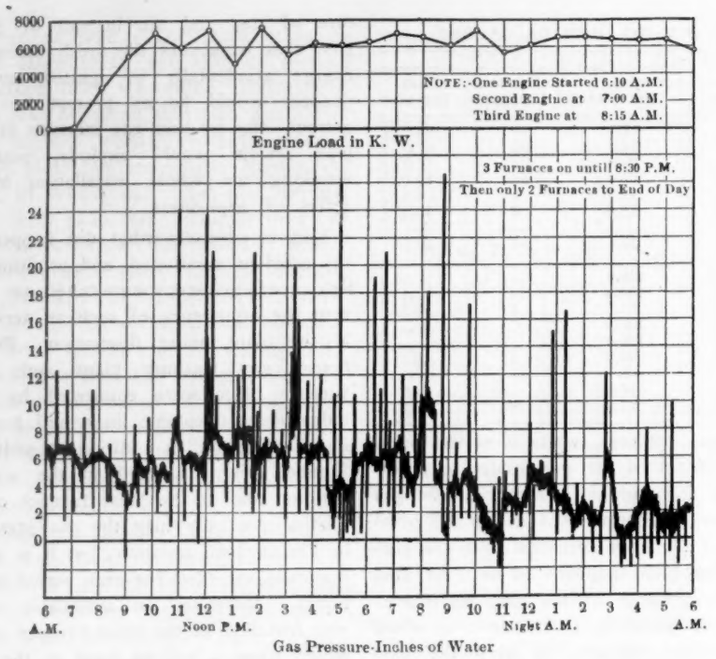


FIG. 1—DIAGRAM SHOWING FLUCTUATIONS IN GAS PRESSURE ENTERING CLEANING PLANT.

the situation, one or more gas engines were shut down.

Fortunately in the majority of cases the blast furnace operators know in advance if the gas supply is likely to fail, and communication could easily be established to warn the departments concerned of the impending gas shortage. The diagram, Fig. 1, plotted from a Bristol chart representing a 24-hour record of the gas pressure at the point where the gas enters the gas-cleaning plant, is a good illustration of the conditions existing on many occasions.

Automatic Devices Unreliable.

The system of close observation and of co-operation among the departments concerned worked to perfection, but nevertheless conditions existed at times which with all due optimism had to be called dangerous. It was frequently necessary to keep several gas engines running, with the gas pressure dropping below the danger point momentarily or even for periods of a few minutes. This was unavoidable if the operation of certain departments dependent upon a supply of electric power was to be maintained with any regularity. If the gas engines had been shut down every time a momentary drop in pressure occurred, it would often have meant an endless amount of shutting down and starting of engines, altogether too frequent for satisfactory operation of the mills, and physically impossible for the gas engine operators.

The question whether an automatic safety device should be installed at the power plant under discussion was thoroughly considered and such devices were investigated; but it was decided that the installation of costly safety appliances, which were certain to become inoperative with the normal number of furnaces in blast, was not warranted, as the conditions of gas shortage were exceptional and of temporary nature only. Besides, automatic safety devices, no matter how ingeniously designed, are never "foolproof," and have the reputation of operating without cause and of failing to act when needed. A further drawback is the tendency to over-confidence in the infallibility of a safety device. In this respect gas-cleaning plants should be classed with boiler plants, where the "human element" cannot be eliminated, and safety depends ultimately upon the rigid enforcement of certain established regulations. Responsible operators can use good judgment which automatic safety devices do not possess to decide whether shutdowns are necessary when low gas pressure occurs, possibly for a moment only. This was proved time and time again at the plant under discussion.

The Best Safety Device.

If such safety devices are considered necessary, however, the arrangement of automatic circuit breakers to shut off the power at the rotary washers, and simultaneously interrupt the ignition circuit of the gas engines, is decidedly better for safeguarding the plant than the installation of butterfly or check valves between rotary washers and gas holder, which shut off delivery under the control of the gas pressure. While in both cases the aspiration of air by the rotary washers is effectively prevented, the former device protects not only the gas cleaning plant but also the gas holder, while the latter may cause collapsing of the holder bell by isolating it from the gas supply.

Quantity and Quality of Gas Supplied to Engines.

The amount of gas produced by each blast furnace is calculated and distributed in proper proportion among the different places of its consumption. Monthly gas-distribution sheets give a record of the average daily tonnage of each furnace, the kind of blast, whether natural or dry, the kind of coke used and the coke consumption per ton of iron; further, the average gas analysis for each furnace based on daily determinations of continuous 24-hour samples, the heat value per cubic foot at 62 degrees Fahr. and including the sensible heat of the gas at 500 degrees Fahr., the temperature of the air at the blowing engines, the number of cubic feet of air blown per minute, and the average blast pressure. From these data the quantity of gas produced by each furnace per minute is calculated, and the distribution of the gas from one blast furnace based on such calculations is given in Table IV.

TABLE IV.

DISTRIBUTION OF GAS FROM BLAST FURNACE NO. 6—AUGUST, 1909.

	Million B. T. U.	Per cent.
Total gas generated	324.1	100
Stoves and leakage.....	130.0	40
Blowing engines	92.1	28.4
Used at furnace	9.0	2.8
Auxiliaries	4.6	1.4
Total used for blast furnace operation	235.7	72.6
B. T. U. surplus for furnace	88.4	27.4
B. H. P. equivalent of surplus	1,470	

For the distribution of gas it is assumed that 40 per cent goes to the stoves and is lost by leakage. The amount of gas used for the blowing engines is calculated from the boiler horsepower, the latter being determined by the quantity and pressure of air blown, the steam rates of engines and the evaporation per boiler horsepower. The British thermal units equivalent of boiler horsepower for steam distribution in the current month is equal

$$\text{to } \frac{\text{boiler horsepower} \times 33{,}320}{\text{boiler efficiency}} \text{ and the}$$

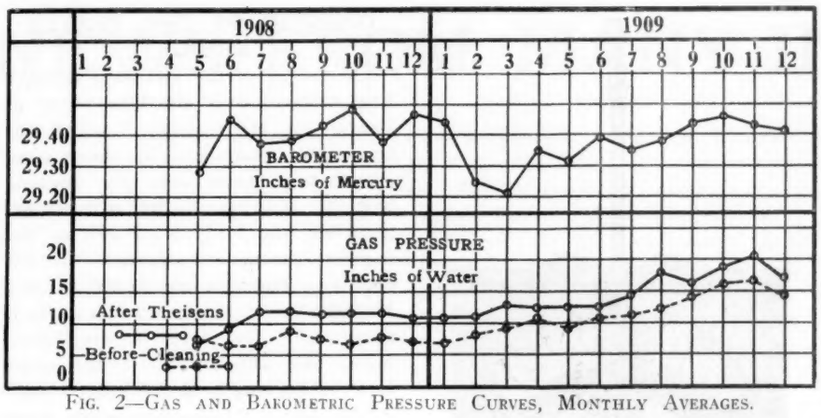


FIG. 2—GAS AND BAROMETRIC PRESSURE CURVES, MONTHLY AVERAGES.

latter is arbitrarily assumed to be 55 per cent. It is further assumed that 150 boiler horsepower is used in steam at each blast furnace and that all auxiliaries use 5 per cent of the steam going to the blowing engines. The difference is the surplus gas per furnace available for other departments, which is stated in the equivalent of boiler horsepower. Using the former example for an illustration, the total amount of British thermal units in the gas produced per hour by furnace No. 6 was in August, 1909, according to the carbon method, 324.1 million. The distribution was as above in Table IV.

The surplus gas was used for operating gas engines in the gas electric station and for raising steam for steam electric power. In this way a British thermal unit balance can be made for all furnaces in each month, as the total kilowatt hours produced in the electric stations and the amount of coal which had to be fired under the boilers are known.

An excellent practical indicator of the gas quantity available for engine operation is the gas pressure at the cleaning plant. With more than three furnaces in blast the pressure is always sufficiently high to make operation of the gas power station perfectly safe. Fig. 2 shows the average monthly gas pressure at the main water seal where the gas enters the cleaning plant and in the fine gas main after the secondary washers.

While the quantity of blast furnace gas was subjected to considerable variation due to the generally unfavorable conditions which existed in the early part of 1909, the quality of the gas was also found to vary materially, so far as its chemical composition and heat value were concerned. These were influenced not only by changes in the furnace burden and by the kind of product, whether basic iron, Bessemer iron, spiegeleisen or ferro-silicon, but by other other causes to which variations, frequently recorded from hour to hour, to a large extent could be traced.

(To be continued.)

GEARS FOR MOTOR-DRIVEN TOOLS.

By JOHN RIDDELL.[1]

Most machine tools demand variable speeds, and the latest forms of variable speed drives require considerable gearing, which, if not properly made and installed, will cause more noise than is desirable. This noise can be entirely eliminated in any case for which cambric pinions can be made; these, while noiseless, are also extremely durable and efficient.

A brief description and history of this invention may be of interest.

A large punch and shear, driven by a motor through a train of gears and installed in a blacksmith shop, where the work is very heavy and rough, had been giving a great deal of trouble, both from noisy gears and from stripping of the gear teeth.

As originally fitted up, the train of driving gears consisted of a brass pinion on the motor shaft which drove through a cast iron cut gear on a countershaft, and this, in turn, through another pinion connecting with the main gear of the machine. The countershaft carried a heavy flywheel, which, when running, caused a backlash that several times stripped the teeth from the cast iron gear. The brass gear also soon lost its shape and gave trouble. After this experience a street railway gear and pinion were used, but they made an intolerable noise and had to be discontinued. It was at this stage that the inventor, looking for a substitute which would stand up, and having in mind rawhide and fiber, bethought him of having a muslin pinion made. This pinion was accordingly made, and was put on the punch over a year and a half ago; up to the present writing, it has not given a particle of trouble, neither does it show any appreciable signs of wear.

Since that experience a great many other troublesome machines have been similarly equipped, until at present there are 700 of these cambric pinions in active service, and as yet not one has failed.

In making these pinions, the following process is followed. The muslin is cut out in discs which are assembled and pressed between two steel washers, the whole then being securely fastened with rivets or tap bolts, following the same method as that of making rawhide pinions. The blank is next turned to the proper diameter and the teeth cut in a gear cutter. The gear is then soaked in a good quality of machine oil.

These pinions can be made in various forms, of any reasonable size, and either with or without metallic centers. It is absolutely necessary, however, for the shrouding to extend to the full diameter of the gear.

With these pinions the use of lubricants is unnecessary, as the oil which was absorbed by the muslin in the oil bath will keep the teeth of the pinion lubricated for an indefinite length of time. In the actual running of these gears they seem to take a metallic coating on the teeth, which tends to protect them from excessive wear from the teeth of the other gear.

In addition to these features, there is also a certain amount of flexibility which is beneficial, as in all commercial gears there is apt to be some slight inaccuracy in the spacing from tooth to tooth. When such gears are run with other metallic pinions there may be, and frequently is, an excessive strain brought on one tooth, which tends either to bend or break it. With the cloth pinion, however, the flexibility afforded by the material tends to distribute the strain over at least two or more teeth, depending on the size and number of teeth in contact; these will stand any reasonable amount of this bending, there being no fibers to crystallize as in the case of the metallic gears.

Some engineers, when the matter was first brought to their attention, were inclined to be a little skeptical, but the pinions have given and are giving a practical demonstration of their merits by running every day in the hardest kind of service. An inspection of some of these cases would, I think, satisfy anyone as to their worth.—*General Electric Review.*

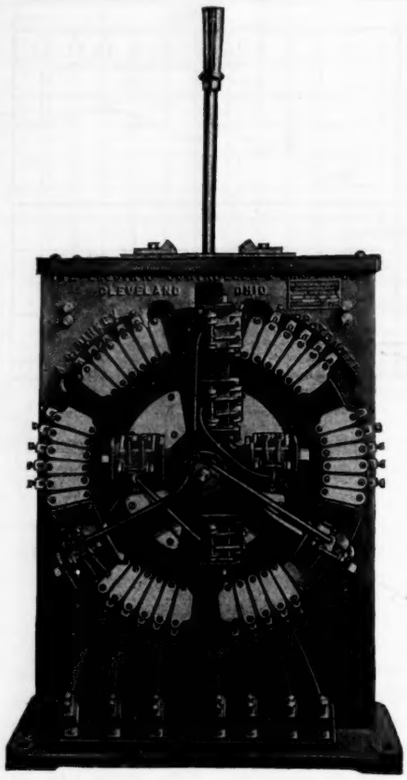
[1]Superintendent General Electric Co., Schenectady, N. Y.

A NEW LINE OF ALTERNATING CURRENT CONTROLLERS.

Until quite recently, direct current motors were used almost exclusively for operating electrically-driven cranes and mill machinery. However, the flexibility and ease with which alternating current may be transmitted has, within the past few years, resulted in a large and increasing use of alternating current motors for these applications.

For this character of work the series wound direct current motor has the desirable characteristic of high starting torque. In alternating current motors this feature is more nearly found in the slip ring type of motor than in the squirrel cage type. Therefore, for the operation of cranes, mill tables, and other reversing work of a similar nature, the development of the alternating current motor has leaned heavily toward the use of the slip ring motor. Speed and torque control are obtained by inserting and varying resistance in the secondary winding of the motor.

The Electric Controller & Mfg. Co., of Cleveland, has developed a line of manually operated controllers for slip ring alternating current motors from 1 to 100 horsepower. These controllers follow as closely as possible in design and construction the direct current controllers which this company has been manufacturing for some years. In fact, wearing parts on the alternating current and direct current controllers are interchangeable to a large extent.

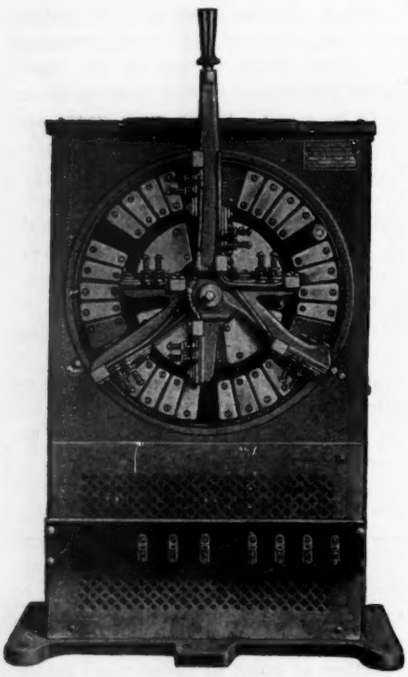


DINKEY TYPE ALTERNATING CURRENT CONTROLLER.

The controllers illustrated are for use in connection with reversing slip ring motors, either 2-phase or 3-phase. The resistance is entirely self-contained, it being necessary to connect only seven leads to the controller. Where heavy currents are to be handled, cast grid resistance is employed, and unusual precautions have been taken to insure insulation which will be permanently satisfactory.

All contacts are mounted on a vertical slate face so that mill dust cannot settle btween the segments, causing short circuits. The contacts are of heavy copper and are reversible. The use of screws or bolts with special threads has been avoided, and so far as possible, wearing parts have been designed so that they can be replaced by the user in his own repair shop.

The operation of all of these controllers is by a lever motion which the manufacturer considers advantageous for crane and mill service. Although the cuts illustrate controllers for slip ring motors only, yet the Electric Controller & Mfg. Co. says it has furnished and is prepared to supply controllers for squirrel cage and alternating current commutating motors.



TYPE C ALTERNATING CURRENT CONTROLLER.

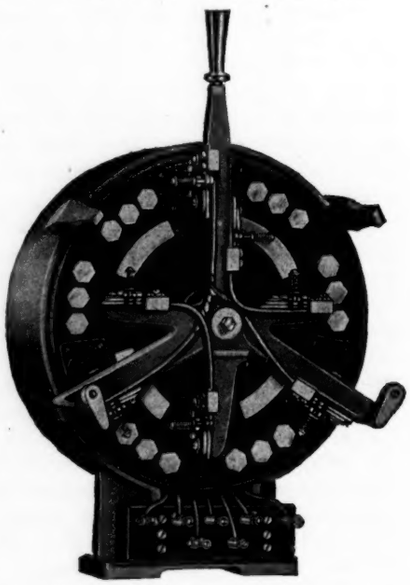
OPENING OF THE BEAVER BRIDGE.

The bridge of the Pittsburg & Lake Erie railroad over the Ohio river at Beaver, Pa., the erection of which was begun two years ago, has been completed, and trains are now running over it. It is said to be, with its approaches, the longest as well as the highest cantilever structure in the country. The cost was $2,000,000, and 166,000 tons of steel were used. It is about 1,800 feet long between abutments and 240 feet above the water level. The length of the longest span is 769 feet. Excavations were made 35 feet deep below the water line to reach bed rock for the foundation. The bridge was illustrated in THE IRON TRADE REVIEW, Aug. 20, 1909.

FAST RAILROAD TRAVELING.

On May 21, two Michigan Central railroad special trains of 12 coaches each carried the Brotherhood of Locomotive Engineers from Detroit to Niagara Falls. The first train ran the 224 miles from river to river without a stop in 224 minutes, and the second train in still better time—217 minutes. The trains were in charge of Engineers John Sevigny and George Blanchard, both of St. Thomas, the two engineers longest in the service of the Michigan Central railroad.

E. T. Schuler, of Gadsden, Ala., has filed a voluntary petition in bankruptcy. His liabilities are scheduled at more than $1,500,000, the greater portion of the debts being made when notes were given jointly by him and the Southern Steel Co., bankrupt.



TYPE U ALTERNATING CURRENT CONTROLLER.

NEWS FROM MANY INDUSTRIES

(In order to assist the post offices in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers:—

The following manufacturing companies have filed articles of incorporation:

The Motor Machine Co., Terre Haute, Ind.; $1,200; by David R. Ulmer, Michael Henry and James M. Colwell.

The Beaver Dam Foundry Co., Beaver Dam, Pa.; $25,000; by Edward S. Mason, J. H. Seering and Frank Draheim.

The Michigan Engine Valve Co., Detroit; $100,000; by G. W. Golden, G. W. Golden Jr., Frank Golden and G. H. Shefferly.

The Lundhaven Brass Foundry Co., Buffalo; general foundry and manufacturing business; $15,000; George W. Morris, Frank P. Lund, J. Gordon Rappell, all of Buffalo, N. Y.

The Canadian Malleable Iron & Steel Co., Ltd., Toronto; capital, $500,000; provisional directors, James A. Brown, John H. Alexander, Erle S. George and others.

The Perfect Process & Tool Co., Buffalo; hardware, tools and specialties; $10,000; by William H. Hodson, Oscar M. Hodson and Edward D. Woods, all of Buffalo, N. Y.

The Dunkirk Machine & Boiler Co., Dunkirk, N. Y.; machinist, brass founder, tool and boiler maker; $5,000; by Thomas W. Pentecost, Herbert R. Rose and H. L. Breckenridge, all of Dunkirk, N. Y.

The John Polachek Bronze & Iron Co., Brooklyn, N. Y.; $10,000; John Polachek, Elmhurst, Long Island, N. Y.; Louis Schmitt, Philip Schmitt and George Schmitt, 343 Madison avenue, New York City.

The Prahar & Schwartz Mfg. Co., New York City; metal novelties; $5,000; by Leopold H. Prahar, Francis Prahar, 619 East 143d street; Frederick J. Schwartz, 522 West 145th street, all of New York City.

The American Pneumatic Conveying Co., New York City; pneumatic conveyors and machinery; $200,000; by Worthington M. Jacobs; William W. Ackerman, 39 Cortlandt street; John A. Seely, 30 Church street.

The Simplex Interlocking Steel Stair Co., New York City; metal stairs and construction of all kinds; $150,000; by Hampden L. Johnstone, Clarence H. Teller, 15 Broadway; and Arthur H. Bissell, 56 Liberty street.

The Taylor May Machine Co., Rochester, N. Y.; machinery tools and appliances; $20,000; by Henry D. Taylor, 95 Emerson street; Harry A. May, 898 University avenue; Albert E. May, 241 Culver road, all of Rochester, N. Y.

The Syracuse Pattern Works, Syracuse, N. Y., metal patterns and metal castings, etc.; $10,000; Charles Knapp, Belden avenue; Elmer Knise, 814 New Butternut street; Carl Bauer, South Clinton and West Adams streets, all of Syracuse, N. Y.

New Construction:—

The Oswold Motor Co., Goshen, Ind., is erecting two additions to its plant. Its output, with present capacity, is contracted for several months ahead.

The International Harvester Co. is having plans drawn for a five-story warehouse at Baltimore, 115 x 120 feet, of brick and mill construction. Bids will be received July 5, at the Baltimore builders' exchange.

The Michigan Smelting & Refining Co., Detroit, has purchased a site for its proposed works. It will erect thereon three monitor steel buildings, each 60 x 300 feet, which will be used for smelting and refining purposes.

The National Sanitary Mfg. Co. has begun construction work on an addition to its foundry at its Salem, O., plant. The addition will be 30 x 60, and will increase the output of the small ware manufactured at its plant over 30 per cent.

The LaSalle Machine Tool Co., LaSalle, Ill., has let the contract for a brick extension to its plant, estimated to cost over $5,000. The extension will be 48 x 95 feet, making the entire building 48 x 165 feet when completed, which will be about Aug. 1.

The Standard Roller Bearing Co., Philadelphia, is receiving bids for a machine shop and office building, 60 x 100 feet, and a power house, 50 x 70 feet, estimated to cost $110,000. The shops will be located near Fifty-sixth street and Lancaster avenue, and are to be completed by Aug. 1.

The Imperial Brass Mfg. Co., Chicago, maker of brass specialties, advises that it is its intention to erect a building for its business exclusively on a site purchased at Center avenue and Harrison street. As yet, the style and size of building have not been determined, nor has it been decided just when construction will begin. In a way the investment was made with a view to future requirements.

Bausch Machine Tool Co., Springfield, Mass., advising concerning recently noted new construction, says that the plant addition will be for a pattern storage, 50 by 100 feet, and will not have any machinery equipment.

The Cleveland Engineering Co., Cleveland, is preparing plans for the proposed new plant of the Seneca Chain Co., Kent, O., to replace the works destroyed by fire last fall. The Seneca company has not definitely decided yet as to the equipment requirements.

The Detroit Valve & Fittings Co., Wyandotte, Mich., whose plant was recently damaged by fire, began rebuilding the same day a two-story core room building, 65 x 72 feet, and it is now nearing completion. All the equipment has been purchased. The fire destroyed a quantity of foundry supplies, core boxes, elevator, blue prints and records in a temporary office located in the core building, the loss being placed at $10,000, covered by insurance. After a few days delay, foundry operations were again started.

The Bevier Gas Engine Co., Kalamazoo, Mich., advises respecting proposed new construction that it will build a machine shop, 60 x 125 feet, one story, with a high truss roof with traveling crane. It will have first class shop equipment for its work, and all the machines will be direct connected. It proposes to manufacture heavy duty engines, from 20 to 500 horsepower, using various kinds of fuel. At present, no foundry will be built, but it expects within a year to have both foundry and pattern shop operating. The gas engine which will be built was designed by H. R. Bevier, of Grand Rapids, who will have charge of the engineering, while Charles Redington, also of Grand Rapids, will be in charge of the shop, both being members of the company. D. A. Shepardson and J. Gumbisky, of Kalamazoo, are financially interested in the company.

General Industrial:—

The Union Drawn Steel Co., of Beaver Falls, has filed notice of in-

crease of capital stock from $200,000 to $1,500,000.

H. Brokelmeyer, it is announced, will remove his foundry and machine shops from Temple, Tex., to Cleburne, Tex., and will more than double the capacity of the plant.

The Rogers Machinery Co., Rogers, Ark., which was recently incorporated to do general repair work, has purchased its machinery equipment and has installed it.

The sheet mill of the Reading Iron Co. is now manufacturing its own charcoal blooms. The new forge was put in operation last week, the new addition being located on the north side of the building.

The Stark Rolling Mill Co., Canton, O., has adopted in general the wage scale of the American Sheet & Tin Plate Co. This is said to increase the wages of the Stark company's employes.

The Moore Metal Product Co. this week started its new plant at Sharon, Pa. The officers of the company are: President, Charles A. Moore Jr., New Castle; vice president, Charles A. Moore Sr.; secretary and treasurer, William H. Buehler.

The Chicago-Racine Aluminum Brass & Iron Works has been incorporated with a capital stock of $16,000, to manufacture metal specialties, machinery and devices. The incorporators are Elmer E. Jackson, 107 Dearborn street, Chicago; Clyde C. Colwell; Cyrus H. Adams Sr.

The shops of the Union Foundry & Machine Co., Salt Lake City, Utah, were recently damaged by an earthquake. Part of the roof collapsed, and flying material considerably injured the machinery equipment. The shock caused the buildings to settle from five to six inches.

The Ferguson & Lange Foundry Co. has purchased the property which it occupies at the corner of Hawthorne avenue and Willow street, Chicago, approximately 300 feet. The company had originally held a ten years lease on the property, five of which had expired.

Molders at the Jeansville Iron Works Co.'s plant at Hazelton, Pa., have received wage increases ranging from 8 to 15 cents a day, the distribution being based upon individual merit. Striking pattern makers at the works are considering terms offered by the company.

The G. M. Yost Mfg. Co., of Meadville, Pa., has purchased the plant of the Williamson Vise Co., of Bradford, Pa. The entire machinery outfit, stocks, etc., of the Williamson company will be moved to Meadville at an early date. The G. M. Yost Mfg. Co. makes a complete line of vises for machinists, pattern makers, wood workers, blacksmiths, jewelers and tool makers, and this consolidation will enable the company to greatly increase its lines and output.

Chillicothe Foundry & Machine Co., Chillicothe, Mo., whose incorporation was recently noted, advises that it has purchased the plant of the Frank Way Foundry & Machine Co., and will continue the business. It has one of the best equipped machine shops and foundries in its section. Structural material will be its specialty.

The Stewart Iron Works, of Cincinnati, has been merged with the Stewart Jail Works Co., and its capital stock increased to $400,000 preferred stock, and $600,000 common stock. The company was started 25 years ago at Wichita, Kan., by R. C. and W. A. Stewart, and in 1893 they removed the plant to Cincinnati, and later to Covington, Ky.

The Youngstown Furnace Co. has been incorporated and has taken over the business of the Youngstown Furnace & Supply Co. A. K. Kimmel has been chosen president and general manager; C. F. Landolt, vice president, and H. E. Owen, secretary and treasurer. Mr. Kimmel was formerly identified with the old company as sales manager.

After a conference of the representatives of the Oliver Plow Works, of South Bend, Ind., and the International Harvester Co., it is announced that the Oliver company has entered into a selling arrangement with the International Harvester Co. by which the entire output of the Oliver company's plant to be built at Hamilton, Ont., will be handled by the International Harvester Co.

Recent shipments of Newten cupolas reported by the Northern Engineering Works of Detroit, include the Specialty Foundry Co., of 12 tons capacity per hour; two to the Ford Motor Co., each of nine tons capacity per hour; one to Massey Gin & Machine Co., five tons capacity; one to Hamden Foundry Co., of three tons capacity; and one to the Orrville Pump Co., of seven tons capacity per hour.

The Dunlap Engineering Co., Columbus, O., which, on Feb. 1, 1910, changed its corporate name from the Columbus Pneumatic Tool Co., is constructing a building, 75 by 150 feet, to be built of brick and structural steel with cement floors throughout. In the construction it is following its present factory building plant. The addition will double the capacity of the plant. New machinery equipment will include engine lathes, turret lathes, milling machines, etc., and the orders covering its requirements have already been placed. Its output will include the regular line of pneumatic tools which it has been manufacturing for the past ten years, but this year it has added to its products front and rear automobile axles for gasoline and electric pleasure and commercial vehicles. It has on hand several large contracts with automobile manufacturing companies for the season of 1911, its newly projected line having increased its business materially.

Trade Notes:—

Wright & Smith, engineers and machinists, have moved from Railroad avenue and end of Pine street to their new shop at King street dock, Seattle.

J. K. Dimmick & Co., Philadelphia, have opened an office at Fairmont, W. Va., in the Fairmont Trust building, with Theo. Workman in charge.

Fires:—

The machine shop and forge shop of R. Musgrave & Sons, at North Sydney, C. B., were damaged by fire on May 31. Loss is over $20,000.

The machine shops of the Erie railroad, at Mosier, in Youngstown, O., were damaged, May 29, the loss being estimated at $1,000.

The plant of the Canada Car & Foundry Co., at Amherst, N. S., was slightly damaged, May 30, the loss being estimated at about $1,000.

The frame foundry of the Gogebic Steam & Boiler Works, Duluth, was seriously damaged, June 4, the loss being estimated at $10,000.

The Morristown Pattern Works, Morristown, Pa., owned by Frank Sutcliffe, was badly damaged, May 30, the loss being placed at $3,000.

The Kokomo Brass Works, Kokomo, Ind., were damaged by fire, which originated in the assembling room, June 7. The loss is estimated at $10,000.

The Northern Foundry & Machine Co.'s works, at Sault Ste. Marie, Ont., was seriously damaged, June 2, including the machine shop and the foundry. The loss is estimated at $2,500, mostly covered by insurance.

Sparks from a passing locomotive set fire to a storage shed at the No. 1 Lebanon, Pa., blast furnace of the Lackawanna Iron & Steel Co., May 29, the loss being estimated at $1,000, covered by insurance.